The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 138, NO. 2 — CHICAGO, ILLINOIS — SEPTEMBER 11, 1948

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PLACE OF NEUROANATOMY IN THE MEDICAL SCIENCES

Chairman's Address

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It is fitting that once in a decade or so the science of the structure of the nervous system be recognized, that its achievements and the methods be noted and that its place in the assembly of the medical sciences be once again defined.

Perhaps any topic concerned with anatomy as such may seem somewhat strange when presented to a gathering of psychiatrists, neurologists and neurosurgeons. This, I like to think, is due to the notion that, after all, anatomy is a fairly well seasoned science with nothing very exciting to contribute, rather than to the opinion that, in the light of the new trends in medicine wherein the psyche also requires time for study, anatomy does not offer a full measure of utility. Indeed, it has been suggested that neuroanatomy may be represented by a reading acquaintance rather than by direct study of the body structure. It is known to many of you that this is not spoken lightly. It is truly a first principle that all medical arts have basic sciences. That a basic science of clinical neurology is the anatomy of the nervous system is obvious; it has been equally obvious to representatives of the American Psychiatric Association in planning training programs that the anatomy of the nervous system is a science basic also to psychiatry. This was a wise and prudent decision. It is not to the best interests of any medical art to depart too far from its material substratum even though methods of inquiry and of treatment are discovered that can fill the practitioner's time completely. Occasional practitioners may certainly, and with much benefit to all, give their full time to a purely psychologic study of the ills of mankind; but such immaterialism would be fatal, if adopted, as a principle for all to follow. Wise are they who, in the practice of psychiatry, dip from time to time into the clear well of morphology and drink deeply again of physical reality. Befitting to a psychiatrist is the recognition of the value of cultivating the anatomic sciences; the price of abandoning this point of view would be a new mysticism and a return to the emotionally charged methods of treatment and diagnosis that preceded the influence of Galen. Study the psyche and the soma too. There is adventure in both; but the great and ancient tradition of medicine lies more surely with a view that includes the soma.

Aristotle squarely faced this issue about two thousand years ago. His view may be worth looking into again. In Homeric Greek the word *soma* refers to a cadaver, a dead body. What then is the psyche? To Aristotle it represents the sum total of activities that distinguish the living man from the dead man. There is something about working in the dissecting room and with histologic material prepared from dead tissue which serves to emphasize the distinction between living and dead. A period of life in a person followed by death is certainly a dramatic change and presents a difference fundamental enough to be the basis of a distinction. Using the Aristotelian concept, then, the term *psyche* would refer to the whole of living activity —not merely to mental activity but to all the differences that distinguish the living man from the corpse. In this way one may avoid the disturbing dichotomy which has dogged the tracks of scientists from the time of Descartes. Here is a formula for considering man as a whole living unit, the psyche not separated from the soma but the two forming an integer, a living man. Soma and psyche, then, are not actually separated, but only separable for the purposes of separate study. In the light of this view, the brain and the rest of the nervous system are not taken to be actually set apart from other structures of the body; it is the whole actively functioning living body that includes the psychologic component. Thus, the living heart and the living stomach are as important psychologically as the living brain. In the brain certain functions come to a more critical focus; but the status of the gastrointestinal tract also enters into the processes of thinking—indirectly, of course, but quite definitely.

Futile controversies setting the psyche apart from the soma, setting the mind apart from the body, can be simply and easily discarded by giving our attention to the living man as distinct from his dead counterpart. Neuroanatomy extends the hand of good will by including functioning structure in its concepts. With a great measure of credit due the studies of American investigators, the anatomic substratum of such psychologic activities as perception, volitional movement and emotion is sufficiently known to supply a basis for global functioning in an integrated living unit. Anatomists and physiologists have joined hands in elucidating the structure, connections and functions of the nervous system, so that the mechanism of the cerebral cortex, the thalamus and the striatum are sufficiently known to provide a basis for the unitary activity with which psychology deals. The anatomic substratum of

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Read before the Section on Nervous and Mental Diseases at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

thought, of emotion and of movement, distinguishable one from the other, yet flowing as in a stream and joined in the total purposive activity of a living unit, is fairly well known to us, and the underlying circuits within the central nervous system for carrying on such a flow of living activity are being demonstrated. Neuroanatomy thus provides the basic structural unity needed for the total harmony which is properly called integration.

CLINICAL NEUROLOGY

The role of the nervous system may be considered from two aspects: the role of the nervous system with respect to all organs of the body and the role of the nervous system as it relates to the specialty of clinical neurology. For completeness of knowledge in any specialty of medicine and surgery, knowledge of the relation of the nervous system to the organs concerned is required. Neurology, therefore, in its broadest aspect as the study of the structure and function of the nervous system, enters into all other special fields. It presents such a comprehensive base that it is not surprising to find that the delimitation of the field assigned to the specialty of clinical neurology should be difficult. Clinical neurology is interested in the whole of the anatomy of the nervous system, but treats only some of the diseases of the nervous system. This is at the root of the perennial mystery that surrounds the boundaries of clinical neurology. Considered anatomically, every special field of medicine and surgery has a neurologic aspect. While anatomy of itself, then, does not serve to delimit the field of clinical neurology, it does give the neurologist a sound foundation of interest in all other organs of the body.

The exact content of clinical neurology varies from decade to decade, as various portions of the diseases of the nervous system are assigned at one time to clinical neurologists and at another to orthopedists, pediatricians, internists and dermatologists. Traditionally, clinical neurology deals with unknowns, pursues neuroanatomy and other basic sciences of its subject matter and when causes and treatments are discovered, turns the diagnosis and treatment over to the nearest related specialty. In this way poliomyelitis anterior has been turned over to pediatricians and to orthopedists, posterolateral sclerosis to internists and syphilis of the central nervous system to internists and dermatologists. At the present time, the diseases of the nervous system still assigned to the clinical neurologist include the epilepsies, the post-traumatic states, the various forms of paraplegia and migraine. Clinical neurology should assert its right to the diagnosis and treatment of neurosyphilis and poliomyelitis anterior. It would benefit immeasurably by a clear definition of its scope.

A clinical specialty tends to grow out of some distinctive and characteristic method of examination, a method in which the development of a skill will exceed that generally possible for a man engaged in other subjects. Such a distinctive method will always be the ability to perform and interpret a physical examination of the nervous system. A distinctive diagnostic instrument may be found in the electroencephalograph, which, in addition, offers new opportunities for the correlation of neuroanatomy and neurophysiology.

NEUROSURGERY

The story of the development of modern neurosurgery is one of friendly collaboration between the neuroanatomist and the neurosurgeon. As neurosurgery developed, it delved into the vast pool of accumulated neuroanatomic material and utilized it for the devising of operative procedures and methods of diagnosis. In turn, it has contributed and continues to contribute to the sum total of neuroanatomic knowledge. Whatever may be said of the *odium medicum* existing at times between the neurosurgeon and the clinical neurologist, no shred of jealousy appears between the neurosurgeon and the neuroanatomist. Cognizant of the benefits which they confer on one another, they tend to proceed in the spirit of collaboration. The very texture of neurosurgery is woven into the field of neuroanatomy. The collaboration between the neurosurgeon and the neuroanatomist, it is reasonable to believe, will go on; nothing will serve the field of neurosurgery better than the provision for residents in neurosurgery of a completely adequate program for the study of the anatomy of the nervous system. There should be an assigned time for this study and opportunities for pursuing some special topic of anatomic study. It is to the best interests of the neurosurgeon to foster in every possible way the development of neuroanatomy in medical colleges.

PSYCHIATRY

By turning our attention away from things as they are in fact and by utilizing a device of logic, we permit ourselves to make up separate sciences of morphology and psychology. The benefits so beautifully demonstrated in the intimate connection (and the acceptance of that intimate connection) between neurosurgery and neuroanatomy are equally to be had in the association of psychiatry and neuroanatomy. Some psychiatrists are tempted implicitly to deny the need and even the existence of the material substratum of their science. The nervous system is a reality. True to his code, the psychiatrist faces the reality of the nervous system, irrespective of the apparent difficulty presented by the intricacy of its structure and its seeming remoteness from many of his methods. Knowledge of the structure of the nervous system offers to the psychiatrist the touchstone by which he may proceed to correlate psychologic data with physiologic changes and pathologic evidences of disease. For this reason, in programs for the continued advance of psychiatry it is especially appropriate that consideration be given to the fostering of basic neuroanatomic studies in relation to those programs. To the psychiatrist, the neuroanatomist must yield any limitation of the field to pure morphology and include living functioning structure in the concept of his subject.

NEUROANATOMY AND THE MEDICAL SCHOOL

Neuroanatomy, because of some remoteness from practical application, requires sponsoring in colleges of medicine. It is of sufficient scope to justify a separate academic department; but its roots are such that it thrives as a subdepartment in the broad field of anatomy. The needs for its help continually arise. It is clear that clinical neurology, neurosurgery and psychiatry have a particular interest in a vigorous growth of neuroanatomy. It is also clear that all other fields of medicine and surgery need its help, its stabilizing influence and, in particular, its role in the process of integrating each particular specialty with the whole man. There should be provision for postgraduate students in every specialty of medicine and surgery to pursue detailed investigations into that part of the nervous system which concerns their specialty—this in addition to adequate provision for undergraduate teaching and for research. This can be accomplished

only by men within the profession who see the need and give it support. It cannot be well dramatized. It must get its support from the men to whom it freely gives of its treasures, the only men who are in any way fitted to realize its scope, its place and its contributions.

CONCLUSION

Neuroanatomy gives a firm basis for coordinating all systems of the body and therefore enters into the understanding of the functioning of all systems of the body. It enters into the fundamental knowledge required for all special fields of medicine and surgery and for the final and complete skill in the practice of these arts. It is the basis of neurosurgery and is required to avoid absurd pitfalls in the practice of general surgery. It is the heart of clinical neurology and of the understanding of its syndromes. It is a portion of that soma in psychosomatic medicine and psychiatry, remote with respect to some psychologic manifestations but nevertheless real. It cannot, therefore, be reasonable to make light of this science or to neglect the pleasantly intellectual discipline of its study, but, rather, in the measure that it is fostered in medical schools, in its own family of clinical neurology, psychiatry and neurosurgery and in relation to general medicine and all the individual specialties, in that measure can completeness, thoroughness and integration in all these fields be determined.

CORONARY FAILURE

THE CLINICAL SYNDROME OF CARDIAC PAIN INTERMEDIATE BETWEEN ANGINA PECTORIS AND ACUTE MYOCARDIAL INFARCTION

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A perplexing diagnostic problem confronts the physician when his patient complains of cardiac pain too prolonged to be consistent with a diagnosis of angina pectoris but, on the other hand, not attended by the various recognized features of acute myocardial infarction. The duration of bed rest and other details of treatment, as well as the prognosis, depend on the physician's evaluation of the underlying organic and functional changes. The problem is therefore of considerable practical and theoretical moment. The syndrome of cardiac pain which is intermediate between angina pectoris and acute myocardial infarction has been referred to in previous communications [1] by the term "coronary failure." The diversity of terms used by various authors to designate this and closely similar syndromes has led to considerable confusion.

The purpose of this communication is to describe the typical features of coronary failure and to indicate the spectrum-like gradation of cases between the extremes of angina pectoris and acute myocardial infarction.

Episodes of coronary failure exhibit the following clinical characteristics (table 1): 1. There is prolonged severe cardiac pain lasting from one-half hour to many hours, usually unresponsive to glyceryl trinitrate and rest. Patients often recognize that these episodes are different in quality and that the distress is commonly more intense and of longer duration than their usual attacks of angina pectoris. 2. Attacks are infrequent compared to the oft repeated episodes of angina pectoris. 3. The attacks may be provoked by exertion, emotion or other states in which the work of the heart is increased, but they may occur during sleep or at rest. 4. Evidences of myocardial necrosis, such as sustained leukocytosis, progressive elevation of the sedimentation rate and fever, are absent. In this study the sedimentation rate has been determined by the Rourke-Ernstene method [2] (normal range for older age group, 0.08 to 0.70 mm. per minute). Since most of these patients have angina pectoris, the upper limit

TABLE 1.—*Clinical Characteristics of Angina Pectoris, Coronary Failure and Acute Myocardial Infarction*

	Angina Pectoris	Coronary Failure	Acute Myocardial Infarction
I. Clinical manifestations			
1. Pain			
(a) Onset	Sudden	Sudden	Sudden
(b) Location	Anterior part of chest—epigastrium to neck with radiation to arms	Same	Same
(c) Quality and intensity	Vague, "pain," "pressure," "squeezing," "choking"	Same as angina pectoris but more intense; similar quality	More intense, visible
(d) Induced by	Effort, emotion, cold	Same, but may occur at rest	No necessary relation to effort, emotion or cold
(e) Duration	97% less than 5 minutes; less than 15 minutes by history [a]	Prolonged: longer than 20 minutes by observation and history	Usually more prolonged
(f) Frequency	Usually frequent	Infrequent	Infrequent
(g) Response to glyceryl trinitrate	Usually striking	Unusual or temporary	None
2. Peripheral vascular collapse (hypotension, sweating, nausea)	Absent	Unusual	Frequent
3. Pulmonary edema	Absent or rare	Unusual	Frequent
4. Death	Rare	Uncommon	Frequent
II. Evidences of myocardial necrosis			
1. Fever	Absent	Absent	Frequent
2. Leukocytosis	Absent	Absent	Frequent
3. Erythrocyte sedimentation rate [2]	Slightly elevated (0.75 to 1.38 mm./min. in over 60%)	Same; no progressive change usually below 1.5 mm./minute	Progressive rise, over 1.5 mm./minute in 90% of cases [3]
4. Pericardial friction rub	Absent	Absent	Pathognomonic when present
5. Electrocardiograms	No change or transient changes in T waves and S-T segments (depression)	Same as angina pectoris; rarely, marked changes in QRS and S-T segment may appear but are temporary and nonprogressive	Progressive changes of typical patterns usually present; conduction defects and arrhythmias common

[a] Riseman, J. E. F., and Brown, M. G.: The Duration of Attacks of Angina Pectoris on Exertion and the Effect of Nitroglycerin and Amyl Nitrite, New England J. Med. 217: 470-475, 1937.

Read before the Section on Internal Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

From the Medical Service and the Pathology Laboratory, Beth Israel Hospital, and the Departments of Medicine and Pathology, Harvard Medical School. Aided by a Grant from the Life Insurance Medical Research Fund.

Because of lack of space this article has been abbreviated in THE JOURNAL by the omission of tables 2A and 2B. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request.

1. Blumgart, H. L.; Schlesinger, M. J., and Davis, D.: Studies on the Relation of the Clinical Manifestations of Angina Pectoris, Coronary Thrombosis, and Myocardial Infarction to the Pathologic Findings, Am. Heart J. 19: 1-91, 1940. Blumgart, H. L.; Schlesinger, M. J., and Zoll, P. M.: Angina Pectoris, Coronary Failure and Acute Myocardial Infarction: The Role of Coronary Occlusions and Collateral Circulation, J. A. M. A. 116: 91-97 (Jan. 11) 1941.

2. Rourke, M. D., and Ernstene, A. C.: A Method for Correcting the Erythrocyte Sedimentation Rate for Variations in the Cell Volume Percentage of Blood, J. Clin. Investigation 8: 545-559, 1930.

of the sedimentation rate should be extended to 1.38 mm. per minute.[3] 5. Electrocardiographic changes with the attacks are either absent or minor. Rarely, transient changes similar to those seen with myocardial infarction may be present for a period of hours with a subsequent return to the pattern present before the attack. Progressive electrocardiographic changes of the types characteristic of acute myocardial infarction do not occur. 6. The blood pressure usually remains unchanged. Shock and pulmonary edema rarely occur.

REPORTS OF CASES

The following cases are illustrative:

CASE 1.—A. J. H., a physician aged 65 years, entered the hospital for the third time on Oct. 11, 1940, because of prolonged precordial pain. There was a history of generalized xanthomatosis for thirty-seven years, angina pectoris for twenty years, hypertension for at least six years and cholelithiasis and cholecystectomy six years before entry. Twelve hours before entry the patient was awakened at about 1 a. m. by a severe pain in the precordial area which radiated down both arms, causing a "paralyzing sensation." Temporary relief followed the use of glyceryl trinitrate, but the pain recurred, lasted several hours, and required the injection of morphine sulfate for relief.

Physical examination on entry revealed an elderly man lying quietly in bed. The blood pressure was 150 systolic and 78 diastolic; the heart was slightly enlarged to percussion, the sounds regular and of good quality. A systolic murmur

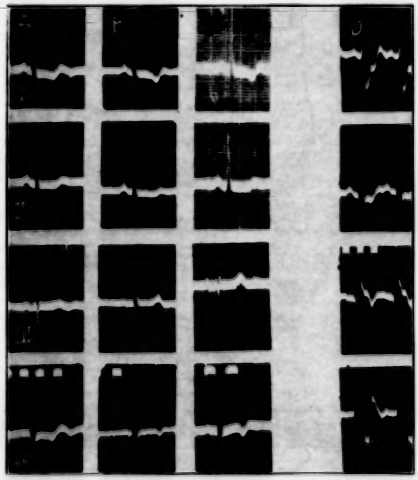

Fig. 1 (case 1, A. J. H.).—*A*, electrocardiogram Oct. 11, 1940, shortly after the attack of coronary failure, showing left axis deviation and diphasic T waves in leads 1 and 4. The S-T intervals in leads 1 and 4 are slightly depressed. *B* and *C*, electrocardiograms of Oct. 14 and 21, 1940, showing the T waves in leads 1 and 4 somewhat more inverted. *D*, electrocardiogram three days before death, showing bundle branch block and right axis deviation and markedly depressed S-T intervals in leads 1, 2 and 4. The S-T interval in lead 3 is elevated and coved and the T wave in lead 3 is inverted.

was present at the apex. There was no evidence of congestive failure or shock. The temperature was 98.6 F. rectally, pulse rate 62 and respiration rate 20.

Laboratory Data.—On admission, the urine contained albumin (1 plus), with occasional white cells and 1 to 2 red cells per high power field in the sediment. A complete blood count was normal, the white cell count 6,800. The nonprotein nitrogen three days after admission was 43 mg. per hundred cubic centimeters; the cholesterol was 624 mg. Electrocardiograms obtained on admission and on the fourth and eleventh hospital days (fig. 1, *A*, *B*, *C*) showed no significant changes. Three sedimentation rates within the first fifteen hospital days were 1.5 to 1.6 mm. per minute.

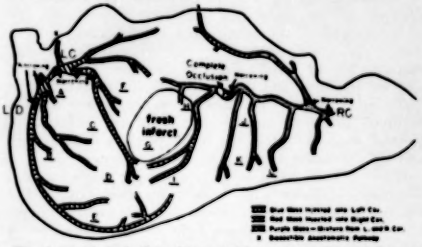

Fig. 2 (case 1, A. J. H.).—Diagram of injected, unrolled and dissected heart. Multiple tagged sections of myocardium, from areas labeled *A* to *L*, showed minimal fibrosis.

The patient's course in the hospital was uneventful. The temperature never rose above normal. The blood pressure varied little during the first twelve days (148 systolic and 76 diastolic to 162 systolic and 90 diastolic), with greater variation in the last ten days (180 systolic and 84 diastolic to 154 systolic and 76 diastolic). On several mornings, after defecation, he had attacks of angina pectoris relieved by glyceryl trinitrate, but he experienced no other episodes of cardiac pain while in the hospital.

After discharge the patient restricted his activities and suffered occasional episodes of angina pectoris relieved by glyceryl trinitrate. He reentered the hospital ten months later with clear evidence of myocardial infarction: pain in the chest of forty-eight hours' duration, shock, pulmonary edema, leukocytosis (17,000) and electrocardiograms characteristic of infarction of the posterior wall (fig. 1, *D*). He died on the third hospital day.

Necropsy.—The heart weighed 675 Gm.; both ventricles were hypertrophied. There was no gross evidence of fibrosis or old infarction. Microscopically, a minimal degree of focal myocardial fibrosis and a fresh infarct were found (fig. 2).

Coronary Arteries: There were pronounced arteriosclerosis and narrowing [4] in all three main coronary arteries as well as in branches of the left circumflex and right coronary arteries (fig. 2). A fresh occlusion, caused by an edematous atheromatous plaque, was present in the distal third of the right main coronary artery. A well developed anastomotic circulation was demonstrated.

Comment.—The episode of prolonged cardiac pain in this case was not associated with clear evidence of myocardial necrosis. The temperature and white cell count remained normal. The sedimentation rate, though moderately elevated (a not uncommon finding in patients with angina pectoris [3]), was unchanged during the period of observation. The characteristic electrocardiographic patterns of myocardial infarction were absent, and at postmortem examination no old healed infarct and little fibrosis were found. The minor electrocardiographic changes seen in this patient (fig. 1) have also been observed with hypertension and noncardiac illnesses.[5] The attack of coronary failure ten

3. Riseman, J. E. F., and Brown, M. G.: The Sedimentation Rate in Angina Pectoris and Coronary Thrombosis, Am. J. M. Sc. **194**: 392-399, 1937.

4. Schlesinger, M. J.: An Injection Plus Dissection Study of Coronary Artery Occlusions and Anastomoses, Am. Heart J. **18**: 528-568, 1939.

5. (*a*) Zoll, P. M.; Freedberg, A. S.; Spiegl, E. D., and Blumgart, H. L.: Unpublished data. (*b*) Marvin, H. M.: The Diagnosis of Coronary-Artery Disease, New England J. Med. **226**: 251-254, 1942. (*c*) Freedberg, A. S., and Lewis, H. D.: The Normal Heart in Old Age, ibid. **231**: 731-738, 1944.

months before death may have been coincident with the occurrence of fresh narrowing in the coronary system, for which compensatory anastomosis was quickly developed.

CASE 2.—E. A., a man aged 59 years, entered the hospital for the third time on Sept. 23, 1937, complaining of attacks of angina pectoris for twelve years which had increased in frequency in the previous two months. The attacks were relieved in one to two minutes by glyceryl trinitrate, but lasted one-half to one hour if glyceryl trinitrate was not taken. There were, however, no episodes lasting longer than an hour. There had been no symptoms of congestive failure. On entry the heart was enlarged, the heart sounds regular and slow, the first sound muffled and of poor quality, the second sound of good quality; the second aortic sound was not accentuated. There was moderate generalized arteriosclerosis. The blood pressure was 154 systolic and 104 diastolic.

During his first month in the hospital, the patient had many attacks of angina pectoris, averaging about three daily, relieved in one to five minutes by the administration of 1/200 grain (0.3 mg.) of glyceryl trinitrate. Five months before death, while still in the hospital, he had a severe attack, during a period of pronounced emotional stress, of substernal pain which lasted two hours and was not relieved by glyceryl trinitrate. Morphine sulfate, 1/6 grain (10 mg.), gave some relief, but had to be repeated. A complete blood count taken that day showed 5,250,000 red blood cells, 97 per cent hemoglobin (Sahli), 11,200 white blood cells, with 78 per cent polymorphonuclear cells. A white blood cell count the following day was 7,650, and two subsequent counts were normal. Four sedimentation rates varied from 0.22 to 0.6 mm. per minute. Four electrocardiograms obtained during the first eight days showed no significant changes compared with an earlier tracing (fig. 3). There was no elevation of temperature or change in the blood pressure or pulse. Twelve days later, at 2 a. m., the patient had another attack of pain in the chest lasting thirty minutes, unrelieved by glyceryl trinitrate; morphine was refused. Following this episode, there were no changes in temperature, blood pressure, heart

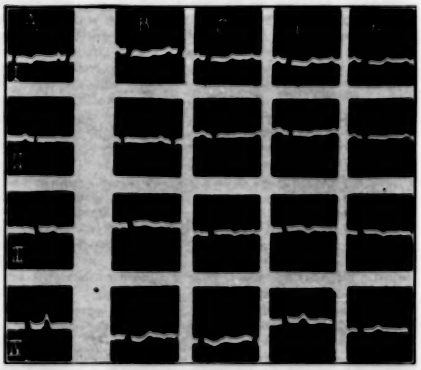

Fig. 3 (case 2, E. A.).—*A*, electrocardiogram May 29, 1937 showing left axis deviation; the T wave in lead 1 is diphasic, in lead 2 is flat and in lead 4 is negative (old method). *B*, *C*, *D* and *E*, electrocardiograms of October 22, the day of the attack of coronary failure, and October 26, 27 and 29, showing minor changes in lead 4 (old method). In *B* and *C* the initial positive deflection of the QRS complex in lead 4 is minimal; in *B* and *C* the T wave is diphasic. In *C*, *D* and *E* the T wave in lead 3 shows late inversion.

rate or white blood cell count, and the patient was allowed out of bed and discharged one week later. He returned to the clinic, with recurrent attacks of angina pectoris, showed the signs of chronic passive congestion and, approximately five months later, died in congestive failure.

Necropsy.—The heart weighed 610 Gm. There was considerable diffuse fibrous myocarditis throughout the heart best seen microscopically. There were no old or fresh infarcts, but the myocardium near the apex had a dusky cyanotic color; microscopically this area showed no necrosis. The valves were normal.

Coronary Arteries: There was extensive coronary arteriosclerosis (fig. 4), with four old occlusions in the main stems of the left descending, left circumflex and right coronary arter-

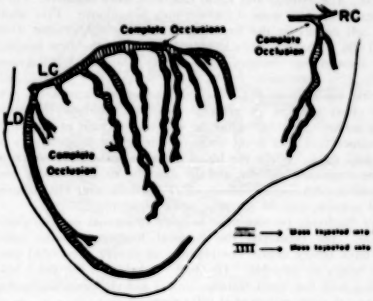

Fig. 4 (case 2, E. A.).—Diagram of injected, unrolled and dissected heart.

ies. The ventricles received their entire blood supply from branches of the left coronary artery proximal to the occlusions. There were no fresh occlusions.

Comment.—This case is of particular interest because all three major coronary arteries had been completely occluded for some time, despite which there were no clinical or pathologic evidences of myocardial infarction. The patient had had many attacks of prolonged pain in the chest lasting one-half hour or more and had had two such episodes while in the hospital, one of which lasted two hours. These attacks were not followed by significant changes in the electrocardiogram, sedimentation rate, temperature or white blood cell count. These episodes conform to the clinical characteristics of coronary failure, and postmorten examination confirmed the absence of healed myocardial infarction.

CASE 3.—D. R., a man aged 70 years, had had angina pectoris for twenty years. Nineteen and one-half years previously he entered another hospital because he was unable to walk one block without experiencing severe attacks of pain in the chest. The pain was occasionally transmitted down the left arm. He had had many severe attacks of substernal pain lasting one to two hours with no relief by rest. On three occasions he had been awakened from sleep by these attacks of pain.

Physical examination revealed a slightly enlarged heart, moderately sclerosed peripheral arteries and a blood pressure of 145 systolic and 75 diastolic. The sounds were somewhat distant but of normal quality; the rhythm was regular and there were no murmurs. He was discharged eleven days after admission, although still suffering from slight anginal attacks while at bed rest and more severe attacks when he was up and about.

His condition was supervised in the outpatient department of the Beth Israel Hospital during the four years preceding his death. The attacks of angina pectoris continued unchanged until fifteen months before death, when he entered the hospital. During the previous two weeks the attacks had been particularly severe at night, and the night before entry he had had pain in the chest lasting three hours. There was no cough, hemoptysis, pleuritic pain or orthopnea. On entry he appeared moderately ill and slightly cyanotic. The temperature was 98.6 F., the heart rate 80, radial pulse rate 66, respiration rate 24. The blood pressure was 152 systolic and 92 diastolic. The heart was enlarged, the sounds distant. There were many extrasystoles, which accounted for the pulse deficit; there were no

murmurs. There were dulness and fine rales at the bases of both lungs. There was no peripheral edema or evidence of shock; decided arteriosclerotic changes were noted in the eye grounds and extremities.

Laboratory Data.—Repeated urinalyses showed occasional albuminuria, a finding noted twenty years previously. On entry a complete blood cell count was normal with a white cell count of 8,900. The Hinton and Kahn reactions were negative. Three sedimentation rates were 0.5 to 0.6 mm. per minute. Five white blood cell counts in the first two weeks varied between 8,650 and 11,600. Three electrocardiograms during the first hospital week showed no changes from previous electrocardiograms (fig. 5).

During the first week the patient had several attacks of pain in the chest relieved by glyceryl trinitrate in about fifteen to twenty minutes, but thereafter he was free of pain in the chest. The temperature was never elevated during the hospital stay of thirty-two days. While the blood pressure was rather constant, ranging from 140 systolic and 78 diastolic to 138 systolic and 90 diastolic, occasional readings of 170 systolic and 110 diastolic or 180 systolic and 80 diastolic were obtained.

After discharge he continued to have substernal pain on slight exertion. He reentered the hospital fourteen months later, three days before death, complaining of severe precordial pain twelve hours in duration. He died in shock on the third hospital day with the characteristic clinical and electrocardiographic evidences of acute myocardial infarction.

Necropsy.—The heart weighed 680 Gm. Both ventricles were hypertrophied and showed slight diffuse myocardial fibrosis grossly and microscopically. There was no evidence of an old myocardial infarct. There was a fresh myocardial infarct involving the posterior portion of the left ventricle and septum.

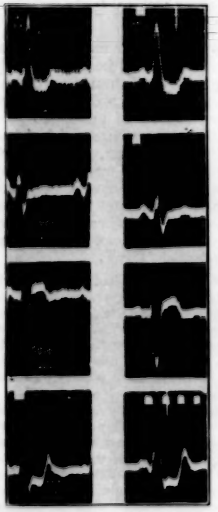

Fig. 5 (case 3, D. R.).—*A*, electrocardiogram, Dec. 8, 1937, showing left bundle branch block. *B*, electrocardiogram, Nov. 9, 1939, shortly after the attack of coronary failure (one of three identical tracings), showing no changes from *A*.

Coronary Arteries: All three major coronary arteries showed extensive arteriosclerosis and narrowing (fig. 6). Zones of narrowing were also present in branches of the left descending and right coronary arteries. An anastomotic circulation was demonstrated between the left descending and right coronary arteries. There was a fresh attached thrombus in the main stem of the right coronary artery. No old occlusions were found.

Comment.—This 70 year old man had had angina pectoris for twenty years, the onset of which was characterized by attacks of cardiac pain lasting one to two hours. In 1939 he had had an attack of cardiac pain of three hours' duration following which careful study revealed no shock, fever, sustained elevation of white count or sedimentation rate, or electrocardiographic changes. This episode and the episodes associated with the onset of angina pectoris conform to the clinical characteristics of coronary failure. The absence of healed myocardial infarction at necropsy is consistent with this interpretation.

The myocardial fibrosis seen at necropsy may have been a consequence of the episodes of coronary failure. It is known that diffuse myocardial fibrosis is a common pathologic finding in angina pectoris, representing the end result of frequent ischemic episodes which lead to death and replacement of small numbers of muscle fibers. Similarly, in coronary failure certain of the ischemic muscle fibers may undergo degeneration and

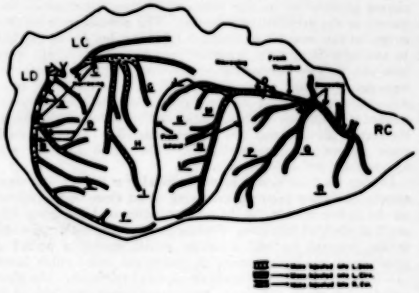

Fig. 6 (case 3, D. R.).—Diagram of injected, unrolled and dissected heart. Multiple tagged sections of myocardium from areas labeled *A* to *R* showed slight diffuse fibrosis.

replacement by fibrous tissue. The total number of fibers or the size of the area involved, however, is not large enough to result in clinical evidence of myocardial necrosis. As in angina pectoris, the vast majority of muscle fibers in the involved area, although ischemic, evidently recover without damage.

Case 4.—L. S. L., a man aged 70 years, had had hypertension for fourteen years and angina pectoris for eleven years. In October 1931, he first noted the onset of precordial oppression radiating to the upper part of the left arm on walking, which was relieved by rest. These attacks occurred several times daily. In June 1932, after unusual exertion one afternoon, he suffered a moderately severe attack of "angina pectoris," lasting ten to fifteen minutes and incompletely relieved by glyceryl trinitrate. An uncomfortable sense of substernal oppression and gas continued until 1 a. m., when he experienced a severe attack of substernal pain. The pain radiated to the left shoulder blade and down both arms to the wrists, lasted one-half hour and was not affected by nitrites. A heavy substernal oppression persisted for ten hours.

Physical examination showed a man propped up in bed with no signs of cyanosis or congestive failure. The heart was enlarged to the left, the rhythm regular and the rate 90. The sounds were of good quality and there was no friction rub or murmurs. The temperature was 98 F., the blood pressure 200 systolic and 115 diastolic to 190 systolic and 110 diastolic without alternation. A note by a prominent cardiologist stated, "A small coronary occlusion seems almost certain. He appears at the moment in good condition, comfortable but restless." An electrocardiogram taken four days later was similar in all respects to those seen previously (fig. 7, *A*, *B*). Conservative treatment of approximately three weeks in bed with toilet privileges was recommended. After this episode he continued to have angina pectoris on exertion and emotion.

In November 1936, approximately six years before death, he suffered a typical attack of acute myocardial infarction, characterized by severe, precordial pain lasting thirty-six hours, fever, peripheral vascular collapse and electrocardiographic changes (fig. 7, *C*, *D*) indicative of involvement of the posterior wall.

Except for continued attacks of angina pectoris and a mild cerebrovascular accident in 1938, the patient remained essentially the same until one and one-half years before death. At 3:30 p. m. on July 15, 1940, he began to have colicky pain in the left lower quadrant, dysuria, frequency and urgency due to vesical calculi. The same evening, while in bed, he suddenly

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experienced severe substernal pain radiating to the inner aspects of the left arm, not relieved by three doses of glyceryl trinitrate. One hour later the patient felt weak and appeared somewhat restless, pale and perspiring. The blood pressure was 180 systolic and 90 diastolic. The heart sounds were good, and the rate was somewhat elevated. At this time an electrocardiogram showed decided changes with a pattern of acute injury of the basal posterior wall (fig. 7, *E*). The pain subsided in two and one-half hours after two injections of 1/6 grain (10 mg.) of morphine. The white blood cell count was 10,000. One week later it was 8,400 and the sedimentation rate was 0.8 mm. per minute.

The morning after the attack the patient felt well and had had no recurrence of pain; the blood pressure was 210 systolic and 104 diastolic. An electrocardiogram showed a reversion to his usual pattern (fig. 7, *F*). In the absence of subsequent electrocardiographic changes, leukocytosis and elevated sedimentation rate, this attack was regarded as one of coronary failure. The patient had an uneventful course, was kept in bed two and one-half weeks and then allowed to resume his usual, limited activities. He died in coma one and one-half years later, in February 1942, of a massive cerebral hemorrhage.

Necropsy.—The heart weighed 440 Gm. There was hypertrophy of both ventricles. There was an old healed myocardial infarct in the posterior basal portion of the left ventricle, measuring approximately 2.5 cm. in diameter. In addition, there were focal areas of subendocardial fibrosis in the posterior wall.

Coronary Arteries: All three main coronary arteries showed pronounced arteriosclerosis and narrowing (fig. 8). Four old occlusions were found, one in each main coronary artery and one in a primary branch of the left descending. A well developed anastomotic circulation with many dissectible channels was present beyond each occlusion.

Comment.—This patient with angina pectoris for eleven years had two attacks of prolonged cardiac pain without clinical evidences of myocardial necrosis and one attack characteristic of acute myocardial infarction. The attacks of coronary failure, in the light of the postmortem findings, might well have been coincident with coronary occlusion. One may entertain the possibility

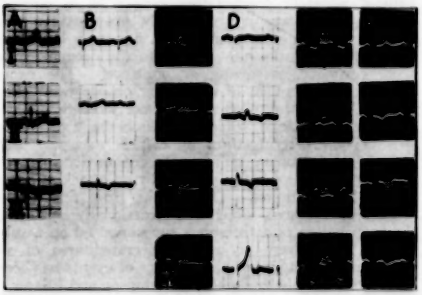

Fig. 7 (case 4, L. S. L.).—*A*, Electrocardiogram, Feb. 13, 1928, showing deep Q and inverted T wave in lead 3. *B*, electrocardiogram identical with one obtained four days after attack of coronary failure in June 1932, showing no change from *A*. *C*, electrocardiogram, Nov. 3, 1936, showing changes characteristic of infarction of the posterior wall. Artefacts due to alternating current are present. *D*, electrocardiogram similar to those obtained after recovery from myocardial infarction, showing inverted T waves in leads 2 and 3; the Q waves in leads 2 and 3 are present; the T wave in lead 4 is upright and high in this record; in others the T wave in lead 4 is lower. *E*, electrocardiogram obtained during attack of coronary failure, July 15, 1940, showing an elevated S-T interval in leads 2 and 3, and markedly depressed S-T interval in leads 1 and 4. *F*, electrocardiogram nine hours later, showing reversion to previous pattern. The T wave in lead 4 is inverted in this record.

that the prolonged attacks of pain may have resulted in infarction in the same area as that in the episode of acute posterior myocardial infarction which occurred in 1936. The absence of the clinical evidences of myocardial infarction (persistence of fever, leukocytosis, elevated sedimentation and of electrocardiographic changes) renders such an interpretation untenable.

This case illustrates several of the salient characteristics of coronary failure. The pain was more severe

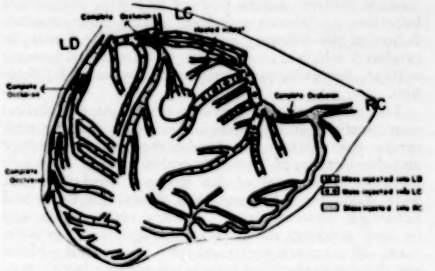

Fig. 8 (case 4, L. S. L.).—Diagram of injected, unrolled and dissected heart. Eighteen tagged sections taken throughout both ventricles showed scattered fibrosis in posterior wall in addition to the old infarction.

and prolonged than that experienced by the patient in his usual attacks of angina pectoris. The attacks occurred at irregular and infrequent intervals, were attended by weakness but none of the evidences of myocardial necrosis. One of the two attacks of coronary failure followed unusual exertion and the other followed colic due to vesical calculi. It is of considerable interest that during this latter attack of pain there were conspicuous electrocardiographic changes but that the preexisting electrocardiographic pattern returned shortly after the subsidence of pain. It has been recognized that during attacks of angina pectoris electrocardiographic changes may occur similar to those following attacks of myocardial infarction; these changes, however, disappear with the subsidence of the attack of angina pectoris.[6] In this patient a striking example of such a sequence of events was witnessed.

GENERAL COMMENT

The accumulation of knowledge regarding cardiac pain has been accompanied by a diversity of opinion concerning the applicable diagnostic terms. The confusion in terminology has resulted largely from numerous attempts to characterize more accurately those episodes of cardiac pain that are clearly neither angina pectoris nor acute myocardial infarction. Some authorities, because of the considerable variety of clinical episodes and coronary and myocardial changes, have deemed it inadvisable or impossible to differentiate the various types of cardiac pain and therefore denote all cardiac pain as indicative of "coronary insufficiency." Other authors have used "coronary insufficiency" to denote entirely different concepts. Master,[7] for example, stated, "coronary insufficiency is a useful term when restricted to necrosis or infarction of the heart without complete occlusion." More recently, however, Master[7a] has used the terms "coronary insufficiency with-

6. Wilson, F. N., and Johnston, F. D.: The Occurrence in Angina Pectoris of Electrocardiographic Changes Similar in Magnitude and in Kind to Those Produced by Myocardial Infarction, Am. Heart J. 22: 64-74, 1941. Wood, F. C., and Wolferth, C. C.: Angina Pectoris: The Clinical and Electrocardiographic Phenomena of the Attack and Their Comparison with the Effects of Experimental Temporary Coronary Occlusion, Arch. Int. Med. 47: 339-365 (March) 1931.

7. (a) Master, A. M.; Dack, S., and Jaffe, H. L.: Nomenclature in Coronary Artery Disease, Mod. Conc. Cardiovasc. Dis., 1941, vol. 10, No. 11. (b) Master, A. M.: Acute Coronary Artery Insufficiency With and Without Acute Occlusion, New York Med. 2: 19-22, 1946.

out acute occlusion" and "coronary insufficiency with acute occlusion." These are diagnostic distinctions which, in the light of our studies,[1] could be applied only to the cadaver. Continued use of these terms would seem to promote only further confusion; we therefore designate the syndrome of cardiac pain intermediate between angina pectoris and acute myocardial infarction as "coronary failure." This term connotes failure of the coronary circulation, however it may be produced, which is more prolonged than angina pectoris without, however, producing acute myocardial infarction.

The results of our previous studies of the clinical manifestations and pathologic finding in patients with cardiac pain forced us to abandon the usual terminology and classification of "coronary occlusion" and "coronary thrombosis" because of the frequent disparities that were encountered between such clinical diagnoses and pathologic observations. Coronary occlusion in and by itself produces no characteristic syndrome; in some cases old coronary occlusions have been found without any damage to the heart muscle and without having produced during the patient's lifetime any symptoms or signs of heart disease. Furthermore, our studies, as well as those of others,[8] amply demonstrate that acute infarction may occur without fresh thrombi or occlusions and that fresh thrombi or acute occlusions of a coronary artery may occur without producing myocardial infarction. In actual practice, the terms "coronary occlusion" and "coronary thrombosis" have been widely employed to designate attacks of prolonged cardiac pain accompanied by evidences of myocardial necrosis; i.e., the occurrence of acute myocardial infarction, and it is therefore more accurate to employ the latter term. It is believed that much of the current debate on nosology [9] revolves about this point. The differentiation of the causes of infarction is necessarily determined by pathologic study; acute myocardial infarction is the lesion which gives rise to the clinical symptoms and signs, regardless of the mechanisms of its production.

Observations [10] in patients with angina pectoris support the prevailing concept that this syndrome is associated with transitory relative myocardial ischemia. The pathologic findings provide a basis for this concept. Practically every patient suffering from angina pectoris without evidence of valvular disease or arterial hypertension showed at postmortem examination old complete occlusion of at least one major artery; in the majority of instances at least two of the three main coronary arteries had been occluded before the terminal illness. That the heart muscle may frequently recover without structural damage if the degree or duration of the myocardial ischemia is not too great is amply shown by the clinical characteristics, electrocardiographic studies and pathologic findings in patients with angina pectoris. Further support is afforded by experimental observations on the effect of artificially induced temporary coronary occlusions in animals.[11]

Between the episodes of temporary reversible myocardial ischemia of angina pectoris and the attacks of irreversible necrosis of myocardial infarction lie the episodes of prolonged myocardial ischemia, which constitute the intermediate group of coronary failure. The clinical characteristics differentiating the three syndromes of angina pectoris, coronary failure and acute myocardial infarction are listed in table 1. Logically, one would anticipate a continuous gradation of cases between the two extremes of short attacks of angina pectoris without myocardial damage and massive infarction of the heart. It may be seen that the cases of coronary failure, listed in tables 2 *A* and *B*, fall in various portions of the spectrum between angina pectoris and myocardial infarction. For example, the second episode observed in case 2 and the episode in case 11 approach the characteristics of angina pectoris, while the first episode observed in case 5 and the episode in case 7 lie in that portion of the spectrum closer to acute myocardial infarction. As has been pointed out in previous communications,[1] the underlying pathologic physiology of all myocardial pain is identical; the clinical and pathologic consequences depend on the duration and degree of the myocardial ischemia and not on the particular mechanism of its production.

In accord with the concept that cardiac pain is due to relative myocardial ischemia, attacks of coronary failure are occasionally coincident with increased demands on the heart such as paroxysmal arrhythmia, emotion or effort; in other instances decreased coronary blood flow consequent to hypotension in shock due to hemorrhage, infection, dehydration, etc., is apparently responsible. When attacks of coronary failure occur without apparent precipitating factors or in circumstances which have not previously provoked pain, a recent reduction of coronary blood flow may be postulated. Such attacks may be due to the occurrence of acute coronary narrowing or occlusion. The exact pathologic mechanism of narrowing or occlusion—i.e., atherosclerosis, thrombosis, embolism, ulceration of an atheromatous plaque, subintimal hemorrhage or edema—is beyond determination by clinical means. Such instances of coronary failure are occasionally followed after an interval of hours or days by an attack of acute myocardial infarction. This results from final death of an ischemic area, which may occasionally be due to the propagation of a thrombus superimposed on a subintimal hemorrhage or on the ulcerated area of an atheromatous plaque. This sequence of events has been described clinically by Feil [12] and Sampson and Eliaser.[13]

Just as the intensity-time factor of cardiac pain may be considered to vary from relatively slight in angina pectoris, through more severe in coronary failure, to profound in acute myocardial infarction, the clinical reflection of myocardial ischemia varies from slight and

8. Levy, R. L., and Bruenn, H. G.: Acute, Fatal Coronary Insufficiency, J. A. M. A. **106**: 1080-1085 (March 28) 1936. Saphir, O.; Priest, W. S.; Hamburger, W. W., and Katz, L. N.: Coronary Arteriosclerosis, Coronary Thrombosis and the Resulting Myocardial Changes: An Evaluation of Their Respective Clinical Features Including the Electrocardiographic Records, Based on the Anatomical Findings, Am. Heart J. **10**: 567-595 and 762-792, 1935. Bean, W. B.: Infarction of the Heart: III. Clinical Course and Morphological Findings, Ann. Int. Med. **12**: 71-93, 1938. Gross, H., and Sternberg, W. H.: Myocardial Infarction Without Significant Lesions of Coronary Arteries, Arch. Int. Med. **64**: 249-267 (Aug.) 1939. Friedberg, C. K., and Horn, H.: Acute Myocardial Infarction Not Due to Coronary Artery Occlusion, J. A. M. A. **112**: 1675-1679 (April 29) 1939.

9. Master.[2b] Jacobsen, V. C.: Coronary Occlusion and Thrombosis and Myocardial Infarction, Correspondence, J. A. M. A. **130**: 530 (Feb. 23) 1946. Field, L. E.: Coronary Occlusion and Myocardial Infarction, Correspondence, ibid. **131**: 353 (May 25) 1946.

10. Keefer, C. S., and Resnik, W. H.: Angina Pectoris: A Syndrome Caused by Anoxemia of the Myocardium, Arch. Int. Med. **41**: 749-807 (June) 1928. Rothschild, M. A., and Kissin, M.: Production of the Anginal Syndrome by Induced General Anoxemia, Am. Heart J. **8**: 729-744, 1933. Riseman, J. E. F., and Brown, M. G.: The Effect of Oxygen on the Exercise Tolerance of Patients with Angina Pectoris, ibid. **18**: 150-152, 1939. Footnote 1.

11. Blumgart, H. L.; Hoff, H. E.; Landowne, M., and Schlesinger, M. J.: Experimental Studies on the Effect of Temporary Occlusion of Coronary Arteries in Producing Persistent Electrocardiographic Changes, Am. J. M. Sc. **194**: 493-502, 1937. Bayley, R. H.; LaDue, J. S., and York, D. J.: Electrocardiographic Changes (Local Ventricular Ischemia and Injury) Produced in the Dog by Temporary Occlusion of a Coronary Artery, Showing a New Stage in the Evolution of Myocardial Infarction, Am. Heart J. **27**: 164-169, 1944.

12. Feil, H.: Preliminary Pain in Coronary Thrombosis, Am. J. M. Sc. **193**: 42-48, 1937.

13. Sampson, J. J., and Eliaser, M., Jr.: The Diagnosis of Impending Acute Coronary Artery Occlusion, Am. Heart J. **13**: 675-686, 1937.

reversible manifestations in angina pectoris through more readily perceptible phenomena in coronary failure to striking and sustained changes in acute myocardial infarction. Thus, minor electrocardiographic changes or even patterns which, if sustained, would indicate a diagnosis of acute myocardial infarction, are witnessed as transitory concomitants of attacks of angina pectoris.[8] Elevations in the sedimentation rate varying in duration and degree likewise have been reported in patients with frequently repeated severe attacks of angina pectoris.[3] The finding of diffuse fibrosis, the "chronic fibrous myocarditis" described by pathologists in some instances of angina pectoris or coronary failure, may well represent the end result of the summation of repeated numerous microscopic insults during which temporary myocardial ischemia has progressed to the stage of death of small numbers of muscle fibers with subsequent fibrosis.

In coronary failure, electrocardiographic changes are usually absent or slight; in those instances representing the more severe gradations, transient and at times striking changes may be observed for some hours, followed by reversion to the previous pattern. Similarly, in the cases falling in that part of the spectrum which approaches acute myocardial infarction, slight transient fever, temporary rises in sedimentation rate and rarely leukocytosis may be observed. Between characteristic angina pectoris, characteristic coronary failure and characteristic acute myocardial infarction, these innumerable gradations will be observed, but the diagnostic criteria here set forth permit a clearer and more accurate differentiation of cardiac pain and have served as valuable guides in the clinical management of patients.

The diagnosis of coronary failure is of practical importance, for the treatment differs from that of angina pectoris and of acute myocardial infarction. Such patients are exposed to considerable hazard if, as are patients with angina pectoris, they are advised to continue or reduce only slightly their usual activities. On the other hand, prolonged bed rest may lead to undue hardship, anxiety and major complications. When a patient is first seen during or immediately after an attack of severe cardiac pain, the precise diagnosis often cannot be made. It has been our practice to confine such patients to bed and observe the course of symptoms and signs. If changes in temperature, pulse, white blood cell count, sedimentation rate and electrocardiograms do not occur or are equivocal, minor or evanescent, the patient is permitted to assume gradually increasing activity, sitting up in a chair after several days and then becoming ambulatory. In each case clinical judgment may modify the regimen, but in any event the episode will not be dismissed as an attack of angina pectoris nor will the patient be bedridden for many weeks. Should the attack of coronary failure be the forerunner of myocardial infarction, the patient will be under favorable conditions permitting early diagnosis and immediate treatment.

SUMMARY

The clinical and pathologic characteristics of the syndrome of acute coronary failure, intermediate between angina pectoris and myocardial infarction, are delineated. Seventeen cases have been presented; 4 are discussed in detail; the rest are summarized. Analysis of the group as a whole shows a continuous gradation in severity of coronary failure between the limits of angina pectoris and acute myocardial infarction.

Characteristic episodes of coronary failure consist clinically of prolonged cardiac pain more intense than angina pectoris, unresponsive to glyceryl trinitrate and rest and without objective evidences of myocardial necrosis; sustained or progressive fever, leukocytosis, elevated sedimentation rate and electrocardiographic patterns of infarction are absent. Presumably, the underlying physiopathologic mechanism of these attacks of pain is prolonged but reversible myocardial ischemia. Correspondingly, on pathologic examination, no resultant myocardial infarction or extensive fibrosis can be found.

Coronary failure is precipitated in many instances by a specific clinically obvious factor which causes either sudden increase in cardiac work or diminished coronary blood flow; on the other hand, the attack often occurs at rest or during sleep. It seems likely that in some of these latter episodes without evident clinical precipitating factor the sudden relative diminution in coronary blood flow is due to acute narrowing or occlusion in the coronary tree.

The therapeutic management of episodes of this intermediate syndrome of acute coronary failure depends on clinical recognition and proper evaluation of the underlying physiologic and pathologic changes. The treatment of patients with coronary failure differs from that of angina pectoris and of acute myocardial infarction. They must not be advised, as in angina pectoris, to continue or reduce only slightly their usual activities, nor, on the other hand, should they be confined to bed for long periods of time as in acute myocardial infarction. Patients with prolonged cardiac pain should be observed closely for several days in order to determine whether they exhibit the clinical characteristics of coronary failure; if so, they may be permitted to assume gradually increasing activity, sitting up in a chair after several days and then becoming ambulatory.

ABSTRACT OF DISCUSSION

DR. W. D. STROUD, Philadelphia: The most that I know about coronary artery disease and collateral circulation has been obtained from the work of Dr. Blumgart and his associates. I feel from that work, if a patient with angina pectoris asks whether he is ever going to get rid of his pain, one is justified in saying that there is a possibility that he will. If adequate collateral circulation develops after the narrowing of a coronary artery or an occlusion, the pain may well disappear. I also feel that when the pain has gone and the patient feels perfectly well one should explain the development of the collateral circulation and that it is important for the heart to beat as slowly as possible for a number of weeks; hence the patient should be quiet so that the healed scar will be more efficient. If these things are explained, usually the patient will cooperate. Regarding the cases which have been presented, I should like to make one point. I am not positive that it is a good idea to get these patients with coronary occlusion around too soon. I feel in these cases of so-called coronary failure the patients should be kept either in bed or in a chair with bathroom privileges for at least two weeks. I know of 2 cases that I would have diagnosed as this type of coronary failure, in which there never was any increase in fever, sedimentation rate or leukocyte count, but in 1 instance fourteen days, and in the other case fifteen days after the episode, the electrocardiogram showed definite evidence of coronary occlusion. I think that we should be conservative in our treatment of patients who have given such strong clinical evidence of coronary occlusion before we make up our minds that they have coronary failure.

DR. ARTHUR M. MASTER, New York: Although the laboratory of the authors is hundreds of miles from ours in New York, our results have been similar. Since they are minor, it might be well to speak of our differences of opinion. The authors use the term "coronary failure" to describe episodes

between a simple attack of angina pectoris and a severe attack with myocardial infarction. It is difficult to find a name that suits all conditions and physicians but if the matter of terminology already is difficult, why add another term unless it makes for clarification and simplification? I believe that the cases of coronary failure described by the speakers fall into the classification of coronary insufficiency as used by us and other workers. We have divided acute coronary disease into two main divisions: (1) acute coronary insufficiency, which is a disproportion between the demands of the myocardium for oxygen and blood and the supply; it varies from the slight attack of angina pectoris to a severe one in which the ischemia is so prolonged or severe as to cause myocardial infarction; (2) acute coronary occlusion, which, on the other hand, we reserve for the classical attack of severe pain in the chest and in which fever, leukocytosis, blood pressure drop, pericardial rub, change in heart sounds, increased sedimentation rate are not only usually present but practically always more pronounced than in coronary insufficiency. The two can be differentiated by the electrocardiogram. We did not coin the term "acute coronary insufficiency." The pioneers abroad, particularly in Germany, and the early American workers used this term, and we felt that some recognition should be given their work. We have found the term "acute coronary insufficiency" helpful, and it has stood the test of time. The typical electrocardiographic findings in acute coronary insufficiency, which includes "coronary failure," consists of depressions of RS-T intervals and inversions of T waves. The authors showed a slide in which there was RS-T elevation in lead 3, but it is to be noted that this was an exceptional case, for myocardial infarction due to previous coronary occlusion had probably taken place as evidenced by a Q wave in lead *2* and a large Q wave in lead 3. Coronary disease need not be present in acute coronary insufficiency. In other words, in an attack of acute coronary insufficiency, or the authors' "coronary failure," the arteries may be perfectly normal.

Dr. Robert L. Levy, New York: The work of Drs. Blumgart and Schlesinger and their associates has contributed to our knowledge of the natural history of atherosclerosis of the coronary arteries. Their excellent studies with the injection-dissection technic have made clear the insidiously progressive character of the sclerotic process. They have shown how extensive the lesions may be in the absence of serious symptoms because of the gradual development of the pathologic changes and the parallel growth of a collateral circulation. The type of cardiac pain which has been described presents a nice problem in clinical diagnosis and judgment. But it does not deserve a special designation. Accurate terminology is not mere quibbling, for it promotes clear thinking and intelligent therapeutic procedure. Any disorder which interferes with the adequate flow of blood through the coronary bed causes coronary insufficiency. Coronary insufficiency is a functional disturbance in which the supply of oxygen to the myocardium is insufficient to meet the demands of the heart, in terms of work. It may be caused by a variety of factors which bring about this disproportion and result in cardiac ischemia. It manifests itself most frequently as pain, but may appear in a different form such as pulmonary edema or a cardiac arrhythmia, or even as sudden death. The correlation of symptoms and signs with anatomic changes makes possible the definition of certain distinctive syndromes. The picture which the authors have drawn appears to be that of coronary insufficiency due to partial or complete atherosclerotic closure of a coronary artery, not associated with thrombosis and not followed by the usual evidences of infarction. In some of their cases, to be sure, a slight transient rise in the leukocyte count and sedimentation rate suggested the possibility that minute areas of heart muscle had undergone necrosis. The relatively brief duration and reversible character of the disturbance were due to the presence of ample collaterals. It is logical to regard coronary atherosclerosis as a single pathologic process, appearing, in its various phases, as intimal thickening, subintimal hemorrhage, abscess formation, partial occlusion or complete closure. The occurrence of thrombosis is but one episode in the chain of events. The injury to the myocardium is manifested by infarction and fibrosis. Similarly, there is a single functional disorder, coronary insufficiency, which likewise varies in its manifestations according to the nature and extent of the structural changes in the arteries and muscle of the heart. This concept is in accord with current knowledge and helps to simplify our understanding of a complex group of conditions. Studies such as this, which interpret the clinical features in terms of the pathologic lesions, aid in furnishing the basis for the rational management and effective treatment of patients.

Dr. Joseph T. Wearn, Cleveland: Dr. Freedberg mentioned emotion as one of the causes precipitating these attacks. For years, I have been interested in the fact that excitement of various sorts tended to precipitate anginal attacks and attacks of coronary thrombosis. I found a newspaper clipping of a person's sitting in a poker game who held four aces. Before he was able to put his chips into the pot, he died of coronary occlusion. Since then, a number of persons have sent me clippings of sudden deaths of precipitated angina as the result of emotion or excitement. A recent one in my own experience will illustrate the effect of emotion. This patient was subject to anginal attacks and was driving along a street in Cleveland when a truck cut in front of him and dented his front mud guard. He decided what he was going to say to the truck driver, but as he drew up along side, he was seized with an attack of pain in the chest over his heart and had to slow down and pull up at the curb and allow the truck to pass on. Another instance was that of a wife and a husband playing bridge. The husband did not play the hand as his partner thought he should. As soon as the cards were thrown to the middle of the table, she started to tell him how he should have played it, but was seized with pain over the heart which was later shown to be due to coronary thrombosis.

Dr. Herrman L. Blumgart, Boston: Diagnostic classification, if it is to be significant, must be based on clinical and physiopathologic facts. Classification is justified only if it leads to more accurate diagnosis and to more accurate treatment. If these objectives are achieved, the precise choice of words is of relatively small moment. Our preference for the term coronary failure is due mainly to the fact that "coronary insufficiency" has been used by so many persons to designate so many syndromes, including angina pectoris, acute coronary occlusion, acute myocardial infarction and acute coronary thrombosis, that the term "coronary insufficiency" has ceased to have precise meaning. We have used the term "coronary failure," hoping to clarify the situation somewhat. If it were to be called "Syndrome X" or "Y" or "A," or if every one were to agree that this intermediate syndrome should be called "coronary insufficiency," we would concur. Our studies during the past decade were undertaken because clinical diagnoses no longer conformed to the facts disclosed by the improved methods of Dr. Schlesinger. The clinical classification of cardiac pain into three categories—that is to say, angina pectoris, coronary failure and acute myocardial infarction—has been the result of a detailed pathologic and clinical study of almost a thousand cases. The clinical criteria which have been set forth permit one to predict with high accuracy the actual pathologic findings within the heart disclosed post mortem. Not only is diagnosis more accurate but the regimens of treatment for each of these three categories are importantly different and distinctive. We would agree with Dr. Stroud and others in being conservative in treating patients with coronary failure. We agree that bed rest of perhaps ten days or two weeks may be indicated in some of these patients. Our studies, which have now been corroborated by others, have shown that narrowing of the coronary arteries stimulates the development of compensatory anastomotic circulation. In the presence of anastomotic circulation, a sudden narrowing or an acute, fresh occlusion, we believe, may occur occasionally without producing acute myocardial infarction. The experimental delineation of that situation has been reported previously in 1942, at the Association of American Physicians (*Tr. Am. Physicians* **57**:152, 1942). There is no specific electrocardiographic pattern in this intermediate syndrome of coronary failure such as Dr. Master has pointed out. Even in angina pectoris, electrocardiograms taken during the attack may show elevation of the S-T segment rather than depression.

A NEW VEHICLE FOR PARENTERAL REPOSITORY PENICILLIN THERAPY

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The development of a simple and efficient method for maintaining and prolonging an effective plasma level of penicillin and for reducing thereby the number of intramuscular or subcutaneous injections necessary has been the subject of various investigations during the last few years. In all instances, it was attempted to slow the absorption of the penicillin from the site of injection by incorporating the antibiotic either into a mixture of wax and oil [1] or into water in oil emulsions [2] or into an oily vehicle [3] or into complex vehicles containing vasoconstricting agents.[4] The greatest success in this respect has been attained by the penicillin-wax-oil mixture of Romansky. However, the high melting point and the considerable viscosity of this preparation require special syringes, and the occasional occurrence of painful indurations and abscesses at the site of the injection is an undesirable complication.

An injectable preparation of penicillin, which can be handled at ordinary room temperature because of its fluidity at room temperature, not requiring special syringes for injection and which does not give rise to appreciable local untoward reactions, while possessing therapeutic properties equal or superior to the existing agents, would represent a distinct advance.

It is felt that the preparation to be discussed is a definite step in this direction.[5] The observation that small doses of epinephrine suspended in oil exert a strong delaying effect led us to incorporate potassium penicillin into a vehicle of this composition.

The quantity of epinephrine added to the oil was kept sufficiently low to assure a prolonged local vasoconstrictor action without causing any systemic vasopressor effect. Extensive experimentation with this preparation on animals as well as observations in man showed that the considerable slowing of the absorption of the penicillin from its intramuscular or subcutaneous depot into the general circulation was not essentially due to the oily character of the vehicle, as a prominent delaying action was caused by the prolonged ischemic effect of the epinephrine gradually released from its oily base. The following composition was found generally to be the most useful and efficacious one: crystalline potassium penicillin, 300,000 units; epinephrine, 0.3 mg., and vegetable oil, 1 cc.

The following experimental data on man and dogs demonstrate the pharmacologic properties of this preparation and indicate its presumptive therapeutic effectiveness.

EXPERIMENTAL PROCEDURE

Technical Data.—The preparation used was available in ampules containing 1 cc. of oily medium for the 200,000 and 300,000 units of crystalline potassium penicillin doses and 2 cc. for the 400,000 and 600,000 unit doses. After brief shaking of the ampule for resuspending the sedimented penicillin, the preparation was drawn into an ordinary syringe (2 or 5 cc.) through a 20 or 21 gage needle. It was injected into the muscle of the buttocks without any difficulty. Blood for the determination of the penicillin level was removed at varying intervals from the jugular vein of the dogs and from the cubital vein of man. The serial dilution method of Rammelkamp [6] was employed for the bioassay of the serum, cultures of Streptococcus hemolyticus, type A, group 3, being used as the test organism.

Experiments on Dogs: Mongrel dogs weighing from 7 to 15 Kg. (average around 10 Kg.) were given intramuscular injections with the penicillin-epinephrine-oil preparation ("intracillin" Warner) containing 200,000, 300,000 and 400,000 units of penicillin, respectively, and epinephrine in quantities varying from 0.1 to 0.4 mg. per dose. For purposes of control, similar amounts of penicillin were administered in isotonic sodium chloride solution and suspended in oil. A commercial calcium penicillin-beeswax-oil preparation also was given for comparative purposes. Chart 1 illustrates the results obtained as to the height and duration of demonstrable blood penicillin level and averaged for the various groups composed of a total of 66 dogs.

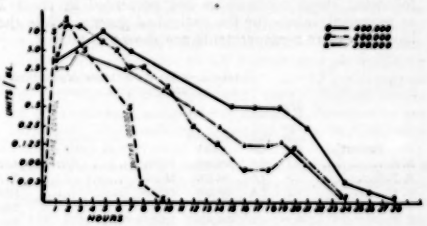

Chart 1.—Average penicillin serum levels following intramuscular injection of "intracillin" in dogs.

Although there occurred distinct variations of the blood penicillin responses among the individual animals to the same type of preparation, it is obvious that there was a considerable prolongation of the demonstrable penicillin blood level in all animals which received the penicillin-epinephrine-oil preparation over those which were given corresponding doses of penicillin in isotonic sodium chloride solution or penicillin in oil.

Experiments in Man: A. Intramuscular administration. The experiments on man were conducted on an ambulatory basis on normal volunteers. The general procedure observed was identical with that used in the dog experiments. The various agents were injected

From the Division of Pharmacology and Chemotherapy, Warner Institute for Therapeutic Research, and the Medical Department, William R. Warner & Co., Inc.

1. Romansky, M. J., and Rittman, G. E.: Method of Prolonging Action of Penicillin, Science **100**: 196, 1944. Romansky, M. J.: The Current Status of Calcium Penicillin in Beeswax and Peanut Oil, Am. J. Med. **1**: 395, 1946.

2. Freund, J., and Thomson, K. J.: Simple, Rapid Technique of Preparing Water-in-Oil Emulsions of Penicillin, Drugs and Biologics, Science **101**: 468, 1945. Cohn, A.; Kornblith, B. A.; Grunstein, I.; Freund, J., and Thomson, K. J.: Treatment of Gonorrhea with Penicillin, J. Ven. Dis. Inform. **27**: 134, 1946. Harris, H. W.; Wilcox, C., and Finland, M.: Plasma Levels After Repository Injections of Penicillin in Water-in-Oil Emulsions, Proc. Soc. Exper. Biol. & Med. **62**: 199, 1946. Ory, E. M.; Wilcox, C., and Finland, M.: Serum Levels After Repository Injections of Penicillin, ibid. **62**: 86, 1946.

3. Cannon, A. B.; Lindstrom, K., and Ospeck, A. B.: Maintenance of Penicillin Blood Levels After a Single Intramuscular Injection of Penicillin in Various Oils, Science **104**: 414, 1946.

4. Senger, F. L.; Warres, H. L., and Rifkin, I.: Penicillin in Propylene Glycol, J. Urol. **55**: 130, 1946. Doll, E. R., and Dimrock, W. W.: Efficacy of Various Agents for Delaying Absorption of Penicillin, J. Am. Vet. M. A. **108**: 310, 1946.

5. A number of other liquid repository preparations ("procaine penicillin," "liquid Romansky") with prolonged action have appeared on the market since the submittal of this paper for publication.

6. Rammelkamp, C. H.: Method for Determining Concentration of Penicillin in Body Fluids and Exudate, Proc. Soc. Exper. Biol. & Med. **51**: 95, 1942.

into the muscular tissue of the buttocks. The number of subjects given injections and the doses used are listed in table 1.

The blood pressure of these men was determined directly before the injections were made, and at varying intervals thereafter, ranging from thirty minutes to thirty-one hours.

TABLE 1.—*Number of Subjects Given Injections and the Doses Used*

Number of Men				
Intramuscular Injection	Subcutaneous Injection	Vehicle	Epinephrine	Potassium Penicillin, Units
12	11	Oil	0.5 -0.6 mg.	600,000
10	..	Oil	0.2 -0.4 mg.	400,000
14	6	Oil	0.25-0.33 mg.	300,000-330,000
..	5	Oil	1.0 mg.	200,000
10	..	Oil	0.1/-0.2/ mg.	200,000
5	17	Oil	0.15-0.3 mg.	150,000
7	..	Isotonic NaCl	.....	300,000-330,000
6	..	Isotonic NaCl	.....	400,000-600,000
6	..	Beeswax-oil	.....	300,000*

* Calcium penicillin.

The height and duration of the blood penicillin level following these medications are presented in chart 2 as averaged values for the individual groups, while the blood pressure measurements are shown in table 2.

epinephrine in oil given intramuscularly in doses six times higher than those present in "intracillin."

The evidence presented in chart 2 demonstrates that in man also the epinephrine in oil vehicle caused a considerable prolongation of the demonstrable blood

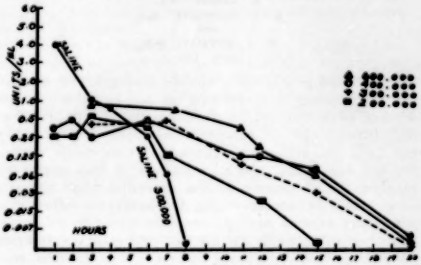

Chart 2.—Average penicillin serum levels following intramuscular administration of "intracillin" in man.

penicillin level. With doses of 300,000, 400,000 and 600,000 units of potassium penicillin, there existed a demonstrable blood penicillin level well beyond the fifteen hour mark (in contrast to the seven hour range when 300,000 units of potassium penicillin was given

TABLE 2.—*Blood Pressure Measurements of Volunteers Treated with "Intracillin"*

Patient	Treatment: Epinephrine	Dose, Cc.	Penicillin, Units	Blood Pressure: Hours After Injection: 0	½	¾	1	2	2½	6	6½	10	11	17	21
S. E.	0.4	2.0	400,000	122/88	.....	.....	128/82	.....	.....	126/82	.....	.....	.....	128/86	132/90
R. F. S.	0.1	1.0	200,000	125/85	.....	.....	120/85	.....	.....	122/76	.....	.....	.....	110/82	116/80
G. L.	0.2	2.0	400,000	122/72	.....	.....	112/70	.....	.....	120/86	.....	.....	.....	120/82	118/68
M. N.	0.8	2.0	400,000	155/78	.....	.....	130/82	148/80	.....	140/88	.....	.....	150/90	.....	.....
R. P.	0.33	1.1	330,000	125/78	.....	.....	128/80	128/84	.....	122/78	.....	.....	128/78	.....	.....
W. M.	0.2	1.0	200,000	130/82	.....	.....	138/75	138/70	.....	138/75	.....	.....	118/72	.....	.....
A. A.	0.8	2.0	400,000	124/70	.....	.....	120/72	124/76	.....	108/70	.....	.....	126/76	.....	.....
F. C.	0.4	2.0	400,000	115/82	.....	.....	118/70	.....	.....	138/86	.....	.....	115/85	.....	.....
W. P.	0.4	2.0	400,000	148/80	.....	.....	.....	.....	.....	150/98	.....	.....	148/80	.....	.....
H. K. K.	0.2	2.0	400,000	118/64	.....	118/74	.....	.....	.....	138/80	.....	.....	118/68	.....	.....
L. C.	0.33	1.1	330,000	130/70	.....	100/60	.....	.....	.....	142/68	.....	.....	136/76	.....	.....
D. J. L. V.	0.33	1.1	330,000	122/76	.....	116/78	.....	.....	.....	136/85	.....	.....	132/80	.....	.....
E. R.	0.33	1.1	330,000	130/78	.....	125/80	.....	.....	.....	140/88	.....	.....	132/80	.....	.....
L. V.	0.6	2.0	600,000	145/110	.....	148/110	.....	.....	.....	178/108	.....	.....	156/112	.....	.....
F. M.	0.6	2.0	600,000	136/86	.....	130/92	.....	.....	.....	135/82	.....	.....	140/86	.....	.....
W. M.	0.2	1.0	300,000	130/82	.....	.....	130/70	.....	.....	114/70	.....	.....	130/72	.....	.....
S. K.	0.2	1.0	300,000	112/78	.....	.....	124/72	.....	.....	130/65	.....	.....	118/70	.....	.....
A. G.	0.33	1.1	330,000	130/95	126/100	.....	.....	.....	.....	130/98	.....	.....	.....	130/100	.....
C. N.	0.25	0.85	255,000	114/78	124/80	.....	.....	118/72	.....	.....	.....	.....	.....	128/80	.....
C. P.	0.51	1.7	510,000	132/82	.....	130/86	.....	.....	.....	140/76	.....	.....	.....	.....	.....
E. S.	0.57	1.9	570,000	150/78	.....	150/78	.....	.....	.....	156/86	.....	.....	.....	.....	.....
B. A.	0.3	1.0	300,000	122/76	.....	122/76	.....	.....	.....	115/72	.....	.....	.....	.....	.....
N. M.	0.3	1.0	300,000	165/76	.....	.....	160/78	.....	.....	122/65	.....	.....	.....	.....	.....
M. N.	0.2	1.0	200,000	128/60	.....	.....	132/65	.....	.....	152/40	.....	.....	.....	.....	.....
I. L.	0.2	1.0	200,000	156/112	.....	.....	145/100	.....	.....	135/98	.....	.....	.....	.....	.....

The data contained in table 2 demonstrate that there was not in any case a significant increase of blood pressure which could be attributed to the vasoconstrictor substance injected. This is particularly noteworthy in regard to those subjects who showed an original systolic blood pressure of 150 mm. of mercury or over, although in several subjects "intracillin" containing doses of epinephrine much higher than those present in the commercial preparation ultimately adopted (0.3 mg.) was used. Pharmacologic experiments on cats [7] confirmed the lack of a systemic vasopressor effect of intramuscularly in isotonic sodium chloride solution), while doses of 200,000 units produced a demonstrable blood penicillin level for more than twelve hours.

B. Subcutaneous administration. In view of the fact that the degree of vascularity of the subcutaneous tissue is lower than that of the muscular tissue and considering that depots located in the subcutaneous tissue are less subject to the massaging action exerted by contracting muscle tissue than those situated in the muscle tissue proper, 39 patients with gonorrhea were given subcutaneous injections of "intracillin" containing 150,000, 300,000 and 600,000 units of potassium penicillin, respectively. (This investigation was done in

7. Ercoli, N.; Harper, W. C.; Schachter, R. J.; Schwartz, B. S., and Whitehead, M.: To be published.

cooperation with Drs. A. Cohn and B. Kornblith.) The values of the penicillin blood levels are presented in chart 3.

The duration of the demonstrable blood penicillin values at a relatively high level for a period of practically twenty-four hours is a feature of this route of administration of "intracillin" with doses of 600,000 units of potassium penicillin. Particularly noteworthy is the fact that even with doses as low as 150,000 units there was in an appreciable number of cases a demonstrable blood penicillin level fifteen hours after the injection.

Since the results reported here have been obtained on unanesthetized animals and ambulatory patients, who subject their tissue depots of penicillin to an appreciable amount of natural massage accelerating the rate of absorption, it is likely that in hospitalized patients, kept in bed during the course of the penicillin treatment, there may be a definite additional prolongation of the period during which demonstrable penicillin levels may be found in the blood.

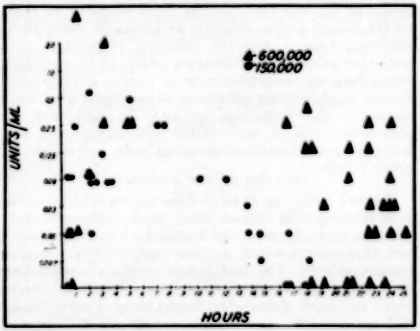

Chart 3.—Penicillin serum levels following subcutaneous administration of "intracillin" in man.

CONCLUSIONS

The evidence presented supports the claim that the penicillin - epinephrine - oil preparation ("intracillin") besides being easily handled with syringes and needles ordinarily available, produces after intramuscular and, particularly, after subcutaneous injection an effective and demonstrable blood penicillin level for periods covering sixteen to twenty-four hours when administered with a penicillin content of 300,000 units of potassium penicillin.

ADDENDUM

A clinical study in the treatment of gonorrhea conducted by Drs. Alfred Cohn and B. A. Kornblith, of the Department of Health, City of New York, confirmed the therapeutic advantages of this penicillin preparation.[8]

These authors found that one single injection of ½ cc. of a preparation containing 150,000 units of penicillin and 0.15 mg. epinephrine cured 97 out of 100 male patients with gonorrhea. The 3 patients who did not respond to the initial injection were promptly cured with a second injection of an identical dose (½ cc. "intracillin").

8. Cohn, A., and Kornblith, B. A.: Single Injection Treatment of Gonorrhea with Potassium Penicillin Suspension in Oil Containing Epinephrine, Am. J. M. Sc., to be published.

AUREOMYCIN

Experimental and Clinical Investigations

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Aureomycin is an antibiotic derived from a strain of Streptomyces aureofaciens. It is supplied as a yellow crystalline hydrochloride salt which is soluble in distilled water but somewhat less soluble in isotonic sodium chloride solutions. These solutions are acid (p_H 4.5). The activity of the antibiotic deteriorates rapidly in alkaline solution at room temperature.

IN VITRO STUDIES

Aureomycin has been shown to possess antibacterial activity against numerous gram-positive and gram-negative bacteria. Beta hemolytic streptococcic strains, groups A, D, F and G, and three strains of Streptococcus faecalis were susceptible to the effects of 0.3 to 1.25 micrograms of aureomycin per milliliter; Diplococcus pneumoniae types I, II and III were susceptible to 0.1 to 0.3 microgram, staphylococci to 0.6 microgram per milliliter, strains of Bacillus coli aerogenes to 5.0 micrograms per milliliter; Klebsiella pneumoniae to 1.0 to 5.0 micrograms per milliliter, Hemophilus influenzae to 2.0 micrograms per milliliter, and Brucella suis and abortus[1] to 0.75 microgram per milliliter, while Pseudomonas aeruginosa and strains of Proteus were not inhibited by 20.0 micrograms per milliliter. The antibiotic appeared to be bacteriostatic rather than bactericidal except in high drug concentration. Human serum seemed to have an inhibiting effect on the antibiotic's activity, and to obtain an inhibitory concentration in the presence of 50 per cent serum about fifty times the concentration was necessary as compared with that in broth.

IN VIVO STUDIES

The acute toxicity of aureomycin was determined in mice, rats, rabbits and dogs. All mice survived a single intravenous injection of 50 mg. per kilogram of body weight. Fourteen per cent survived 100 mg. per kilogram of body weight. Seventy-seven per cent of mice receiving 3,000 mg. per kilogram of body weight in a single subcutaneous dose survived a seven day observation period. All the animals died when 4,000 mg. per kilogram of body weight was administered. Death was preceded by hyperpnea, tremors, ataxia and paresis. Areas of necrosis were noted at the local site of injection.

Hyperpnea and anorexia developed in dogs following rapid intravenous injection of 50 and 100 mg. per kilogram of body weight. Injection of 150 mg. per kilogram of body weight was followed by grunting respiration, tremors, generalized paresis, somnolence and hemoglobinuria. Death occurred six hours after the injection was given. A dog which received 20 mg.

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Aureomycin was first described by Dr. B. M. Duggar, Lederle Laboratories Division, American Cyanamid Company.

Aureomycin used in these experiments was supplied by the Lederle Laboratories Division, American Cyanamid Company.

This paper is an abstract of reports made before the Section on Biology, New York Academy of Sciences, July 21, 1948.

These investigations were supported by grants from Abbott Laboratories, Eli Lilly and Company, Lederle Laboratories Division, Parke, Davis & Company and the Upjohn Company.

1. All Brucella cultures were performed by Mr. Ronald M. Wood of the laboratories of the Wilmer Ophthalmological Institute, Johns Hopkins Hospital.

per kilogram of body weight intramuscularly twice a day for nine days had decided anorexia and loss of weight. Induration, necrosis and fluctuation of the injected areas were noted. The aureomycin was administered in 1 per cent procaine hydrochloride solution.

Rats tolerated subcutaneous injections of 50 mg. per kilogram of body weight once a day for eight days, with only a slight loss of weight and mild local inflammatory reaction.

Three drops of a solution of 0.25 per cent and 1.0 per cent aureomycin borate were instilled locally into the conjunctival sac of a rabbit. No immediate or delayed reactions were noted.

At autopsy no gross or microscopic abnormalities were noted in any of the animals except for necrosis of tissue at the local site of injection. Hemoglobinuria occurred in only 1 dog which received 150 mg. per kilogram of body weight intravenously in a 10 per cent solution in distilled water. The acidity of such a large dose may well have caused hemolysis.

CONCENTRATIONS OF AUREOMYCIN IN BODY FLUIDS

The following concentrations of the antibiotic in blood serum were obtained after single intramuscular injections of 20 mg. per kilogram of body weight in rabbits and 40 mg. per kilogram of body weight in dogs. Levels of 1.25 mg. per milliliter were recorded in the serum in from fifteen minutes to one hour following the injections. No significant concentrations were obtained in the serum more than one hour after the injection was given. A dog received 20 mg. per kilogram of body weight twice a day for ten days. No significant concentrations were detected in the serum obtained more than two and five-tenths hours after the last injection was given. Serums drawn one hour after the injection was administered contained 0.3 to 1.25 micrograms of aureomycin per milliliter. The antibiotic was not detected in the spinal fluid, but high levels were observed in the urine.

When aureomycin was administered orally to a 150 pound (about 68 Kg.) man in doses of 500 mg. twice a day and 40 mg. intramuscularly every six hours, blood levels of 0.6 to 2.4 micrograms per milliliter of serum were observed one hour after an injection was given. The antibiotic produced a greenish yellow discoloration of the urine, in which concentrations of 40 to 80 micrograms per milliliter were observed.

MOUSE PROTECTION

Mice infected intraperitoneally with 10,000 lethal doses of D pneumoniae type I (SVI), and Streptococcus hemolyticus beta (C23) showed complete clearing of the infection in the blood stream eighteen hours after subcutaneous treatment with 5 mg. of aureomycin per kilogram of body weight three times daily. When K. pneumoniae type A was the infecting organism, only partial sterilization of the blood stream was obtained with a dosage schedule of 10 mg. per kilogram of body weight three times daily.

The protection of mice infected with 1,000 lethal doses of K. pneumoniae A, D. pneumoniae I (SVI) and S. hemolyticus beta (C203) and treated with aureomycin, administered by various routes, was studied. Communal feeding was begun two days before infection and continued for five days thereafter, so that a daily dose of approximately 50 mg. per kilogram of body weight was ingested. No survivors were observed at the end of seven days except among those mice infected with S. hemolyticus beta (C203), in which a 70 per cent protection was noted. Gastric intubation begun immediately after infection and continued once each day for three days protected only those mice infected with S. hemolyticus beta (90 per cent survivors). A single subcutaneous injection of 50 mg. per kilogram of body weight administered immediately after infection protected 30 per cent of mice infected with pneumococcus type I, 50 to 70 per cent of those infected with S. hemolyticus beta and 40 per cent of mice infected with K. pneumoniae type A. One hundred mg. per kilogram of body weight administered subcutaneously protected all mice infected with pneumococcus type I and 80 per cent of those infected with K. pneumoniae type A. The intraperitoneal route for administration of aureomycin was somewhat more effective than the subcutaneous route, even though treatment was instituted two hours after infection. Parallel experiments were performed in mice, employing treatment with penicillin as a control for the infections produced with the gram-positive organisms. Treatment with streptomycin and polymyxin was used as control for the infections produced by K. pneumoniae type A. Aureomycin when compared on the basis of mg. per kilogram of body weight dosage was as effective as penicillin when pneumococcus type I was the infecting organism. The protection achieved in infections produced by S. hemolyticus beta was somewhat inferior to that when penicillin was used. When all routes of administration were compared, the protection of mice infected with K. pneumoniae type A, and treated with aureomycin, was definitely less than that observed with polymyxin or streptomycin.

TREATMENT OF PATIENTS

Patients suffering from coli-aerogenes and S. faecalis infections of the urinary tract, Rocky Mountain fever (Eastern type), typhoid and brucellosis have been treated with aureomycin, which was administered orally and/or intramuscularly. The oral dosage employed varied from 10 to 60 mg. per kilogram of body weight per day, given in six to twelve doses. Intramuscularly, a total dosage of 3 mg. per kilogram of body weight per day, divided into four doses, was tolerated, but with signs of moderate local irritation. The 5 patients with Rocky Mountain spotted fever, treated on the third to the fifth day of their disease, were afebrile and asymptomatic within twelve to seventy-two hours. A patient ill with chronic brucellosis, whose blood cultures were repeatedly positive for Br. suis, became afebrile three days after institution of aureomycin therapy. Blood cultures became sterile forty-eight hours after treatment was begun. As of the date of reporting, these had remained sterile and the patient had remained afebrile and asymptomatic for more than two months. Infections of the urinary tract due to coli-aerogenes and S. faecalis have been sterilized and evidence of inflammation has disappeared when patients were treated with aureomycin by mouth.

SUMMARY AND CONCLUSIONS

Aureomycin possesses bacteriostatic and bactericidal activity against numerous gram-positive and gram-negative bacteria.

Its activity deteriorates rapidly in alkaline solution. Human serum also decreases its activity.

The LD_{50} on intravenous injection in mice is between 50 and 100 mg. per kilogram of body weight. The LD_{50} on subcutaneous injection in mice is between 3,000 and 4,000 mg. per kilogram of body weight. Rapid intravenous injection of 150 mg. per kilogram of body weight killed a dog and produced hemoglobinuria.

Repeated large doses of aureomycin were tolerated in rats and dogs, with moderate local reaction and some loss of weight associated with anorexia. Autopsy revealed no gross or microscopic abnormality of the viscera.

A rabbit tolerated 1 per cent aureomycin borate administered locally in the eye.

The concentrations of the antibiotic in serum ranged from 0.3 to 2.4 micrograms per milliliter. The antibiotic was not detected in the spinal fluid. High concentrations of aureomycin were noted in the urine.

Aureomycin administered to mice orally did not protect against infections produced by pneumococcus type I or Klebsiella pneumoniae type A, but did protect against those produced by Streptococcus hemolyticus beta (C203). Parenteral doses gave some protection against all three infections. Penicillin afforded slightly more protection against infections produced by gram-positive bacteria, while polymyxin and streptomycin were superior in experimental infections produced by K. pneumoniae.

Five patients suffering from Rocky Mountain spotted fever, 2 patients with infections of the urinary tract due to Escherichia coli, 1 patient with brucellosis and 2 patients with typhoid were treated, with favorable initial responses.

OCCURRENCE OF SUPERINFECTIONS DURING ANTIBIOTIC THERAPY

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It has been frequently observed that during the course of treatment with an antibiotic a complete change in the bacterial flora may occur. In these circumstances the pathogens sensitive to the antibiotic in use disappear or become less numerous and insensitive organisms may appear in large numbers and cause a new infection. For example, when using penicillin for an infection caused by a gram-positive organism one may encounter a secondary infection caused by a gram-negative bacillus. The reverse may obtain when one uses streptomycin.

Lipman, Coss and Boots [1] described changes in the bacterial flora of the throat and intestinal tract during prolonged oral administration of penicillin. In two recent papers Weinstein [2] discussed the subject of new infections developing during the course of specific antibiotic therapy and reported 5 illustrative cases. Stanley [3] reported a series of 5 cases in which a severe systemic infection due to Bacillus pyocyaneus developed during a course of treatment with penicillin and further suggested that the use of this antibiotic may have enhanced the virulence of B. pyocyaneus. In several papers on penicillin therapy in bronchopulmonary disease there are references to the frequent appearance of gram-negative bacilli in the sputum, but little comment in regard to the significance of this development. It is the purpose of this paper to record 2 cases of pneumococcic pneumonia treated with penicillin in which there developed a new infection due to gram-negative bacilli and also to stress the occurrence of superinfections as an important feature of antibiotic therapy.

REPORT OF CASES

CASE 1. *History*—R. C., a man aged 45, was admitted to Bellevue Hospital on Nov. 8, 1946, with the complaints of dyspnea, productive cough and tightness of the chest of three weeks' duration. The sputum was greenish but not foul. In addition, he had swelling of the legs, weakness, anorexia and loss of weight of about 10 pounds (about 4.5 Kg.).

Physical Examination.—On admission the patient was acutely ill, pale and malnourished and coughed continuously. The temperature was 103.6 F., the pulse rate 120 and the respirations 28. There was moderate cyanosis and dyspnea. The left side of the thorax showed limitation of expansion. There was dulness, modified breath sounds and fine crackling rales over the lower third of the upper lobe of the right lung and diminished fremitus and rales over the lower two thirds of the left lung. The heart was not enlarged, but had a systolic murmur at the apex. The blood pressure was 120 systolic and 40 diastolic. The abdomen was soft. There was pitting edema of both legs. There were no other striking observations. A diagnosis of pneumonia was made.

Laboratory Examination.—The red blood cell count was 2,820,000, with 7.5 Gm. hemoglobin, and the white blood cell count was 6,550, with 61 per cent polymorphonuclear cells and 39 per cent lymphocytes. The urine was essentially normal. The sputum was copious and purulent, but not foul, and showed a predominance of pneumococci II and also some staphylococci and nonhemolytic streptococci. The blood culture was positive for pneumococci II. Fluoroscopy showed an homogeneous density throughout the lower two thirds of the left lung and areas of patchy infiltration in the lower third of the upper lobe of the right lung.

Treatment and Course.—On admission the patient received 4 Gm. of sulfadiazine and then 1 Gm. every four hours. When the temperature rose to 104 F., on the second day, penicillin therapy was instituted. The patient received 40,000 units and later 50,000 units intramuscularly every three hours. On the fourth day the patient appeared toxic and showed an extension

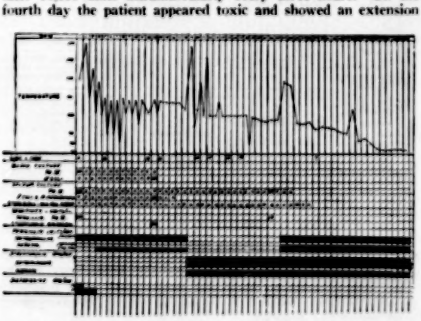

Fig. 1.—Summary of data in case 1.

of the pneumonic process in the left lung and also showed evidence of involvement of the middle lobe of the right lung. Since the presence of fluid at the base of the left lung was suspected, an exploratory thoracentesis was done. This yielded 3 cc. of thick rusty pus, which showed on culture the presence of pneumococci II. The impression was that the aspirated material was from the lung parenchyma.

When it was shown that the isolated pneumococcus had a penicillin sensitivity of 0.01 unit per cubic centimeter, the sulfadiazine therapy was stopped and penicillin alone was used. In addition to the systemic administration of penicillin, the drug was also given by aerosol, 50,000 units ten times a day. Following the course of penicillin therapy the patient improved somewhat, and pneumococci II disappeared from the blood and

Dr. Jack Nelson and Dr. Joel J. Bremner assisted in the study of the cases.

From the Fourth Medical (New York University) Division, Bellevue Hospital, Dr. Charles H. Nammack, Director.

1. Lipman, M. O., Coss, J. A., and Boots, R. H.: Changes in Bacterial Flora of the Throat and Intestinal Tract During Prolonged Oral Administration of Penicillin, J. Bact. **51**: 594, 1946.

2. (a) Weinstein, L.: The Treatment of Meningitis Due to Haemophilus Influenzae with Streptomycin, New England J. Med. **235**: 101, 1946; (b) The Spontaneous Occurrence of New Bacterial Infections During the Course of Treatment with Streptomycin or Penicillin, Am. J. M. Sc. **214**: 56, 1947.

3. Stanley, M. M.: Bacillus Pyocyaneus Infections, Am. J. Med. **2**: 253 and 347, 1947.

sputum. However, a sputum culture taken on the thirteenth day revealed the presence of gram-negative bacilli, identified as Aerobacter aerogenes and Escherichia coli. At the same time the blood culture was positive for E. coli.

On the eighteenth day the temperature rose to 104 F., and the patient became toxic and appeared close to death, with decided dyspnea and cyanosis. Streptomycin therapy was then instituted, the patient receiving daily 2 Gm. intramuscularly and 1 Gm. by aerosol. On the twenty-third day his temperature began to drop, accompanied with general clinical improvement. It should be noted, however, that the isolated gram-negative bacillus showed a streptomycin sensitivity of 500 units per cubic centimeter.

Improvement continued until the thirty-fourth day, when the patient became toxic again and the temperature rose to 102 F. The sputum, which had diminished in quantity, now revealed pneumococci II again, but not the gram-negative bacillus. Penicillin was therefore given in addition to the streptomycin, the patient receiving 500,000 units intramuscularly daily and 1,000,000 units by aerosol. There was a prompt response to this treatment. The temperature dropped to 100 F. during the next two days and then returned slowly to normal. This was associated with general clinical improvement, a sense of well-being and gain in weight. In spite of fairly extensive residual pulmonary fibrosis, there was only slight impairment of respiratory function. The patient was in good condition at the time of his discharge on May 1, 1947.

Case 2.—*History.*—E. E., an man aged 44, was admitted to Bellevue Hospital on Feb. 21, 1947, with the complaints of chilly sensation, fever, pain in the right side of the chest, cough and dyspnea of one day's duration.

Physical Examination.—On admission the patient was acutely ill, apprehensive and dyspneic. The temperature was 102 F., the pulse rate 110 and the respiration 32. The blood pressure

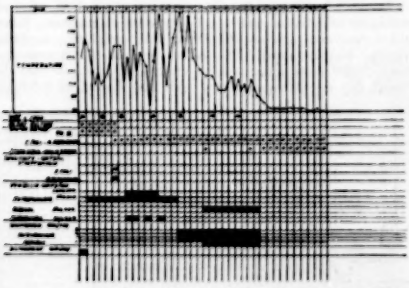

Fig. 2.—Summary of data in case 2.

was 110 systolic and 60 diastolic. There were dulness and bronchovesicular breath sounds over the lower part of the right lung posteriorly and in the axilla. The heart presented no abnormalities, and the results of the rest of the examination were essentially negative.

Laboratory Examination.—The white blood cell count was 26,000, with 91 per cent polymorphonuclear leukocytes. The sputum revealed a predominance of pneumococci II, together with an occasional Streptococcus viridans and Staphylococcus albus. The roentgenogram of the chest showed a pneumonic consolidation of the middle lobe of the right lung. The blood culture was sterile.

Treatment and Course.—On admission the patient received 4 Gm. of sulfadiazine and then 1 Gm. every four hours. The following day the patient appeared moribund, being semistuporous and extremely dyspneic and cyanotic. In addition to the pneumonia there were signs of severe congestive heart failure and auricular fibrillation. The patient was therefore given stimulants, first 0.75 mg. of ouabain and then digitoxin. At the same time penicillin was substituted for sulfadiazine, the patient receiving 50,000 units every three hours. He was also placed in an oxygen tent. There was a satisfactory clinical response, with improvement of the heart failure and reduction in the fever.

On the seventh day the temperature rose to 103 F., and there were signs of fluid at the base of the right lung. The sputum now showed untyped pneumococci, staphylococci and gram-negative bacilli.

On the eighth day a thoracentesis yielded 900 cc. of serosanguinous fluid which showed gram-positive diplococci that did not type with pneumococcus II serum. One hundred thousand units of penicillin were injected intrapleurally. At the same time the intramuscular dose was increased to 200,000 units every three hours. From the eighth to the twenty-first day the patient had a septic temperature. Roentgenograms taken on the fourteenth day showed two fluid pockets. The aspirations of the chest were repeated and were followed by the intrapleural instillation of penicillin, resulting in sterilization of the empyema pockets.

On the eleventh day, the gram-positive cocci in the sputum culture were overgrown by the gram-negative bacilli, and on the fourteenth day there were only gram-negative bacilli, identified as E. coli and A. aerogenes. The E. coli was sensitive to 1.53 and the A. aerogenes to 0.38 unit per cubic centimeter of streptomycin.

Since there was no improvement and in view of the presence of the gram-negative bacilli, the penicillin therapy was stopped and streptomycin therapy was begun on the sixteenth day, with a daily intramuscular dose of 3 Gm. At that time it was thought that the pulmonary parenchyma was breaking down, resulting in the expectoration of large amounts of thick yellow nonfoul sputum.

On the twentieth day the sputum culture failed to show the gram-negative bacilli and again showed gram-positive cocci. Accordingly, combined penicillin and streptomycin aerosol therapy was instituted, 50,000 units of each, for eight treatments daily. This resulted in prompt and progressive improvement. There was a drop in temperature and diminution in the expectoration. The patient's convalescence was uneventful and his recovery complete.

COMMENT

In these 2 cases of pneumococcic pneumonia there developed during the course of penicillin therapy new infections due to organisms not susceptible to this antibiotic. Summaries of the data in these 2 cases are shown in figures 1 and 2. In case 1 a course of penicillin therapy resulted in clinical improvement, with the disappearance of the pneumococci from the blood and sputum. This was followed by the emergence of gram-negative bacilli, identified as E. coli and A. aerogenes, and the simultaneous aggravation of the clinical picture, requiring the use of streptomycin. The pneumonia in case 2 was complicated by congestive heart failure and empyema. After the administration of penicillin intramuscularly and intrapleurally the gram-positive organisms disappeared from the sputum and pleural fluid. However, there occurred a new infection due to E. coli and A. aerogenes. The institution of streptomycin therapy led to clinical improvement and the disappearance of the gram-negative pathogens. It may be of interest to note that in both cases during the administration of streptomycin the gram-positive cocci returned, necessitating supplementation with penicillin.

As Weinstein [28] has pointed out, the mechanism by which the new infection occurs is not clear, but may be due to a disturbance in the degree of bacterial antagonism, which is normally present. It is possible that the removal of bacteria with a specific antibiotic causes insensitive organisms to increase not only in number but also in virulence.

The occurrence of superinfections in patients receiving penicillin or streptomycin serves to emphasize the importance of frequent and careful bacteriologic examinations before and during the course of treatment. The highly specific qualities of antibiotic agents neces-

sitate the accurate identification of causative organisms whenever they arise.

It has been suggested that the combined use of penicillin and streptomycin may prevent the occurrence of superinfections. Since the incidence of new infections does not appear to be high, the routine use of combined therapy is, to our minds, unwarranted. There is also an objection that treatment with both drugs may sensitize certain patients to their use later in life. It therefore seems best to watch for new infections and to use each antibiotic in a specific manner, depending on the precise bacteriologic observations at a given stage of the disease.

SUMMARY AND CONCLUSIONS

Two cases of pneumococcic pneumonia, in which following penicillin therapy there developed a new infection due to gram-negative bacilli, are described.

We have stressed the importance of frequent and careful bacteriologic examinations in all patients before and during treatment with an antibiotic, in order to detect the presence of superinfections.

The treatment of infections from the start with a combination of penicillin and streptomycin is not advisable.

PREGNANCY TEST USING THE MALE BATRACHIA

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In March 1947 I [1] published the first results of a new biologic pregnancy test, in which male toads, "Bufo arenarum Hensel," were used as the reacting animals.

One year has elapsed since the first experiments were made, in January 1947, and it is believed useful and desirable to summarize the information obtained since then from the accumulated statistics and the many papers published on the subject.

The basis of this reaction is the phenomenon which occurs in the testicle of the adult male toad as a direct result of gonadotropic stimulation. The positivity or negativity of the reaction to the test is produced by the presence or absence of spermatozoa in a drop of toad's urine, collected by means of a pipet and observed microscopically within a few hours following the subcutaneous injection of 10 cc. of urine from the woman suspected to be pregnant.

ANATOMIC AND PHYSIOLOGIC CONSIDERATIONS

The testicle is a dual organ, of elongated form, located in the dorsal region of the celomic cavity, parallel to the spine and united by means of a short ligament to the corresponding kidney.

The general structure is similar to that of the testicles of superior animals. It has seminiferous ampules or tubes, interstitial cells and supporting tissue.

Collecting tubes depart from the seminiferous ampules, go through the ligament, get into the kidney and end in certain glomeruli.

This anatomic distribution indicates that the routes of excretion, starting from the kidney, are common to the spermatozoa and to the urine.

The spermatogenesis of the Bufo arenarum Hensel develops in round cellular conglomerates, called spermatocytes or follicles. The spermatozoa derived from each spermatocyst remain attached to the Sertoli cells, grouped together and parallel to each other in such a way that they appear like bundles. Only occasionally the spermatozoa are free and detached from the wall of the tubes and can be seen as a loose skein. The study of the sexual system of the male toad, "Bufo arenarum Hensel," and the relation between the hypophysis and the testicle was started in 1923 by Giusti and Houssay [2] and continued by several authors.[3]

Houssay and Lascano González [3e] said:

> It is evident that in the toad the hypophysis has a constant influence on the spermatogenetic testicular activity. . . . The removal of the hypophysis produces testicular atrophy in the toad. . . . The repeated subcutaneous implantation of toad's hypophysis produces testicular hypertrophy in normal and hypophysectomized animals.

Gonadotropic administration stimulates the interstitial cells and the spermatogenesis and acts on the Sertoli cells.

The spermatozoa produced in the ampules are detached from the Sertoli cells by the gonadotropic action, a phenomenon studied in detail by de Robertis, Burgos and Breyter in 1945 and 1946.[4] Once they are free, following the excretion tubes, the spermatozoa go through the corresponding glomeruli and down the ureter to the bladder and are excreted subsequently with the urine. These batrachia reproduce by external fecundation. During the sexual period, the end of the winter and beginning of spring for the Bufo arenarum Hensel, the toads seek small pools or calm waters, and the male toad rides and embraces the female toad. This embrace, or amplexus, is a tonic reflex difficult to overcome, lasts several days and starts a series of nervous and humoral phenomena, among which the discharge of pituitary gonadotropins is the most important. Under the effect of its own gonadotropins, the female toad ovulates and expels the ovules to the exterior in transparent threads of a gelatinous substance produced by the oviduct. In the male toad, the spermatozoa detached by the gonadotropic action are expelled with the urine and fertilize the ovules contained in the ovular threads.

MATERIAL AND METHODS

Batrachia Used.—Up to the time of writing the following batrachia have been used: the Bufo arenarum Hensel,[5] Bufo

From the Service of Endocrine Diseases of the Rivadavia Hospital Buenos Aires, Argentina.

1. Galli-Mainini, C.: Semana med. **54**: 337, 1947.

2. Giusti, L., and Houssay, B. A.: Rev. Asoc. med. argent. **36**: 283, 1923; Compt. rend. Soc. de biol. **4**: 77, 1923; Rev. Asoc. med. argent. **37**: 155, 1924.

3. (a) Houssay, B. A., and Giusti, L.: Rev. Soc. argent. de biol. **5**: 47, 1929; Compt. rend. Soc. de biol. **101**: 935, 1929. (b) Houssay, B. A.; Giusti, L., and Lascano González, J. M.: Rev. Soc. argent. de biol. **5**: 397, 1929; Compt. rend. Soc. de biol. **102**: 864, 1929. (c) Houssay, B. A., and Lascano González, J. M.: Rev. Soc. argent. de biol. **5**: 77, 1929; Compt. rend. Soc. de biol. **101**: 938, 1929. (d) Houssay, B. A., and Giusti, L.: Rev. Soc. argent. de biol. **6**: 146, 1930; Compt. rend. Soc. de biol. **104**: 1030, 1930. (e) Houssay, B. A., and Lascano González, J. M.: Rev. Soc. argent. de biol. **11**: 102, 1935; Compt. rend. Soc. de biol. **120**: 862, 1935. (f) Houssay, B. A.: New England J. Med. **214**: 913, 1936; Bol. Acad. nac. de med. de Buenos Aires **133**: 1936.

4. de Robertis, E.; Burgos, M. H., and Breyter, E.: Rev. Soc. argent. de biol. **21**: 269, 1945. Proc. Soc. Exper. Biol. & Med. **61**: 20, 1946.

5. (a) Galli-Mainini,[1] (b) Galli-Mainini, C.: Semana Med. **54**: 447, 1947. (c) Galli-Mainini, C.: Obst. y ginec. latino-am. **5**: 355, 1947. (d) Houssay, B. A.: Read before the meeting of the Sociedad argentina de biologia, July 2, 1947; to be published. (e) Figueroa Casas, P.; Belizán, L., and Staffieri, J. J.: Read before the meeting of the Sociedad de obstetricia y ginecologia de Rosario, May 22, 1947. (f) Pinto, M., and Suer Boero, H.: Obst. y. ginec. latino-am. **5**: 356, 1947. (g) Blanchard, O., and Bretto, R.: ibid. **5**: 360, 1947. (h) Saia, S. L.; Jachesky, L., and Colotta, C. A.: ibid. **5**: 361, 1947. (i) Ferrari, R. A.; Pastori, A. A., and Ledesma, D. A.: ibid. **5**: 362, 1947. (j) Merchante, F. R.: ibid. **5**: 364, 1947. (k) Gori, R. M.: ibid. **5**: 366, 1947. (l) Rodriguez Lopez, M.: ibid. **5**: 372, 1947. (m) Pou de Santiago, A.: ibid. **5**: 374, 1947. (n) Hutz, A.: Personal communication to the author. (o) Gandolfo Herrera, R., and Sauri, J.: Obst. y ginec. latino-am. **5**: 368, 1947.

paracnemis,[6] Bufo marinus and Bufo crucifer,[7] Calyptocephallus gayi,[8] Leptodactillus ocellatus,[9] Xenopus laevis,[7b] Odontophrynus,[7b] Rana pipiens[10] and, lately, Bufo d'Orbigny (by me). It should be noted, however, that the possibility of seasonal variation is not known for the Rana pipiens. Seasonal unresponsiveness can be observed in some batrachia with "cyclic spermatogenesis," in which spermatozoa are produced only during a certain period, the testicle being at rest between the active seasons. Because of this reason the selection of a batrachia with "continuous spermatogenesis" will provide a reliable test animal throughout the year.

It is interesting to note that Robbins, Parker and Bianco[11] have obtained positive results injecting pituitary and chorionic gonadotropin in the male Xenopus laevis.

These authors did not state whether they have experimented with pregnant woman's urine and suggested the future use of this animal as reactive for pregnancy.

The batrachia must be male and adult. The sexual characteristics of the male toad are: its size, smaller than that of the female toad, its uniform green color, stronger forearms, dark brownish pigmentation in the inward border of the "thumb"; it "croaks" when taken between two fingers and has the sexual reflex of the amplexus. These characteristics are absent in the female toad.

Weight: The weight of the animal must not be less than 100 Gm. if the Bufo arenarum Hensel is used or 25 to 30 Gm. if the Bufo d'orbigny is used. The Bufo paracnemis Lutz should weigh between 100 to 350 Gm.[6a]

Captivity: These batrachia are easily captured in large gardens and in the open spaces with vegetation and humidity and are maintained in containers of varied sizes, according to the necessities of the laboratory. Basins of 1 meter by 60 cm. by 60 cm. are used in the laboratory of the Rivadavia Hospital, which allows keeping simultaneously and comfortably about 300 animals in each.

While in captivity, the only requirement of the animals is that the place which they inhabit be kept damp. If basins are used, the dripping of a faucet is sufficient. The place should be humid, but immersion of the animals in the water should be avoided, even partially, as in those conditions they die within two or three days. Moderate temperature is preferable. Excessively low temperatures, such as 4 and 5 C. (39 and 41 F.), retard (but do not inhibit) the reaction. During the time of captivity, which may be of several months, they are not given any food. During this period they live on their reserves and can be used repeatedly.

Collection and Injection of the Patient's Urine.—The specimen of the woman's urine can be that of any time of the day, though that of the first miction of the morning is customarily used. This specimen is placed in a clean nonsterile bottle. The patient from whom the urine is to be obtained does not need to have any special diet the previous day, nor need she deprive herself of any medication. The urine is injected directly in the toad, without filtration, concentration, adjustment of *p*$_H$ or any other previous preparation.

Ten cubic centimeters are injected subcutaneously, either in the dorsum or the abdomen, according to the authors. In the batrachia, the skin adheres to the body only in reduced zones, as the middle of the spine and the ventral line, the head and the joints. In the remaining parts the skin is separated from the body, forming great gaps or sacs, through which the lymph circulates. It is for these reasons that, in spite of being proportionally of great volume, 10 cc. of urine can be injected, since it quickly spreads in these lymphatic sacs.

Procurement of Urine Samples from the Batrachia.—The animal is held dorsally against the table, and a pipet is introduced in the "cloaca," to a depth of about 0.5 cm., and is gently moved back and forth until a drop of urine is seen to penetrate the pipet.

Microscopic Observation.—The drop of urine thus obtained is placed on a slide and observed directly under the microscope without previous smearing, fixing or staining. Strong illumination should be avoided. In these conditions a positive result is revealed by the presence of many spermatozoa occupying the microscope's field and appearing in great quantities as delicate undulating short dark lines. The mobility of the spermatozoa is of no importance for the interpretation of the result, since what counts is their presence. It is important not to confuse the small scratches that the slides may have and not to illuminate the microscope excessively or to make the observation at great enlargement. In some cases the lack of contrast of the preparation may make the spermatozoa pass unnoticed.

Time of Observation.—Up to the date of writing, 89 per cent of the positive results obtained by me were obtained within two hours of the injection of pregnant woman's urine. According to Blanchard,[5a] 96 per cent occur within an hour and a half. Sala and his co-workers[5b] observed that 84.5 per cent occur in an hour and 100 per cent three hours after the injection. For absolute certainty it is convenient to extend observation of the negative reactions until twenty-four hours have passed, if the test is made at low temperatures.

Repetition of the Test in the Same Animal.—There may be an interval of one week between one test and another. Each animal can be used generally four or six times.

Reaction During the Time of Reproduction of the Batrachia.—The period of reproduction of the batrachia is not an obstacle for the realization of the reaction. At this time, spontaneous elimination of spermatozoa has never been observed in the toads which are not embraced. During the sexual period the spermatozoa detach and migrate to the toad's bladder only under gonadotropic stimulation, which is due to the discharge of their pituitary gonadotropins as a consequency of the amplexus.

For greater security, however, the toads captured during amplexus should not be used immediately, and it is convenient to observe microscopically the urine of all the toads before performing the test, to be certain of the negativity of the reaction.

Routine and Practice of the Test in the Laboratory of Rivadavia Hospital.—The toads are brought in quantities, calculated as necessary, approximately for two hundred tests a month, and placed in three basins. Each specimen of urine is injected into 2 toads. The toads kept in the different basins are used alternately in such a way that a minimum of a week elapses before the same animals are used again. When all the toads have been used four or six times, they are discarded and replaced with new ones.

The injection is made subcutaneously, with a syringe of 10 cc. and a large needle. The skin of the middle dorsal line is pierced, and the needle is introduced up to the point where it is noticed under the skin of the lymphatic lateral sac, and the urine is injected. The injections and observations are made during the morning hours. The toads which react negatively the same morning that the injection is given are kept under observation in order that they may be observed again the following day. For each observation the same pipet and the same slide are used; they are washed carefully under water between each reading.

To permit differentiation of the pairs of toads receiving the different specimens of urine, they are kept in small numbered cages or are marked by different colored threads tied on the legs or arms.

After the injection is given, the toads are kept at the natural temperature and illumination of the laboratory.

RESULTS

In all, 2,030 tests have been performed by me, the reactions to which are interpreted as follows: suspected pregnancy up to the fifth month of amenorrhea in 1,896 cases, pregnancies from the sixth to the ninth

6. (a) Mayer, H. F.; Govi, I., and Flores, J. F.: Read before the conference at the Colegio nacional Gral. S. Martin, Corrientes, Oct. 18, 1947. (b) Caldeira Algodoal, F.: Personal communication to the author.
7. (a) Caldeira Algodoal.[7b] (b) Mello, M. I.: O. Hospital **33**: 57, 1948.
8. Gunther, B.: Personal communication to the author.
9. Galli-Mainini,[1] Houssay.[2]
10. Wilterberger, P. B., and Miller, D. F.: Science **107**: 198, 1948.
11. Robbins, S. L.; Parker, F., Jr., and Bianco, P. D.: Endocrinology **40**: 227, 1947.

month in 123 cases, suspected ectopic pregnancies in 7 cases, chorioepithelioma in 2 cases and mole in 2 cases.

Positive or Negative Verified Results.—The accuracy of the result could be verified in 1,422 cases of suspected pregnancy; in 960 instances the patient was not pregnant and negative results were obtained in all. In 462 cases of verified pregnancy, positive results were obtained in 458, i. e., a rate of accuracy of 99.01 per cent. All told, in 1,422 tests, there were errors in 4 cases, a rate of accuracy of 99.72 per cent.

Other authors obtained correct results in 98 per cent to 100 per cent of the tests: 100 per cent in 82 cases of pregnancy of less than five months,[5f] 99 per cent in 100 cases of pregnancy,[5g] 99.20 per cent in 103 cases of pregnancy up to the fifth month and [5h] 98 per cent in 50 cases [5h] (these authors obtained 1 erroneous result, but the reading was made two and a half hours after the injection was given), 98 per cent in one hundred tests in verified pregnancies,[5i] 100 per cent in 69 cases of pregnancy of less than six months,[5m] 100 per cent in 300 tests [5l] and 98.19 per cent in 165 cases of pregnancy of less than four months.[5m]

Toxicity of the Reaction.—Of the toads used in 2,030 tests, 23 toads died because of the injection, a mortality rate of 1.13 per cent. Comparatively, in 326 Friedman tests, 14 pairs of rabbits died, that is, 4.37 per cent.

Blanchard and Bretto [5g] noted a mortality rate of 1.5 per cent and Figueroa Casas and his co-workers [5e] 0 per cent in 150 tests.

Comparative Results with the Friedman Test.—In 326 Friedman tests, 14 pairs of rabbits died. Of the remaining 312 tests, made simultaneously in the toad and the rabbit, 291 gave coincident results. Of the noncoincident results in the 21 cases, in 17 cases the result obtained in the toad was correct and in 2 cases incorrect. In the remaining 2 cases, the results could not be verified.

Speed of the Reaction.—In 522 cases in which the results were positive the reactions were observed at intervals of one, two and twenty-four hours after the injection was given. Of these, reactions were positive in 254 cases at one hour, in 212 at two hours and in 56 within the twenty-four hours. In 3 cases the result was positive in thirty-five minutes. The data obtained indicates that 89 per cent of the positive reactions occur within the first two hours after the injection is given. It is probable that if the results had been observed three hours after the injection was given the majority would have been positive.

Blanchard and Bretto [5g] observed that 96 per cent of the positive results were obtained one and a half hours after the injection was given; Sala and his co-workers [5b] noted 100 per cent positive results after three hours and 84.5 per cent within the first hour.

Specificity of the Reaction of the Toad to the Injection of Urine.—The injection of 623 specimens of urine of nonpregnant subjects, men, women and children, who were normal or had a variety of pathologic conditions, gave constantly negative results. The results of the administration of other hormones or substances are described further on.

Five hundred and forty-three control tests—which represent the statistics accumulated from other authors [12]—were made with urine of nonpregnant persons, and in all the cases the result was negative, that is, an accuracy of 100 per cent.

12. Footnote 5d-m. Mayer, Govi and Flores.[5]

Precocity of the Reaction.—Positive results have been obtained with specimens of urine from pregnant women with as little as four (1 case) and five (2 cases) days of amenorrhea.[13]

Results Obtained with Urine and Serum in Pregnancies Between the Sixth and Ninth Month.—Tests with Urine: Eighty-four tests were made, the reactions to six of which were negative, that is, 92 per cent gave positive results, of which 84 per cent occurred within the two hours after the injection was given.

Tests with Serum: Thirty-nine tests were performed injecting varied quantities of serum (between 3 and 7 cc.), and it was observed that the serum of women in the sixth to the ninth month of pregnancy gave 69 per cent positive reactions, 54 per cent of which occurred within two hours after the injection was made. No relation has been observed between the quantity of injected serum and the result obtained.

Other authors have also observed a lower incidence of positive reactions in pregnancies between the sixth and the ninth month.

Results in Suspected Ectopic Pregnancies.—Of test performed in 7 cases, there were positive correct reactions in 2, in 1 of them in forty-five minutes and another one hour after the injection was given. In the remaining 5 cases, results were verified as negative. The experience of other authors are coincident.

Results of Sixty Quantitative Determinations

Condition or Number of Months of Pregnancy	Number of Positive Results with Various Amounts of Urine Injected					
	4 Cc.	2 Cc.	1 Cc.	0.5 Cc.	0.25 Cc.	0.125 Cc.
1.....	1	3	5	7	1	..
1-3½.....	1	4	5	10	7	4
3½-6.....	..	2	7	2	..	..
Chorioepithelioma...	..	..	..	..	..	1

Chorioepithelioma and Mole.—The reaction was positive in 2 cases of chorioepithelioma and in 2 of hydatiform mole. On the other hand, Pinto and Suer Boero [5f] obtained negative results in 1 case of chorioepithelioma.

Quantitative Reactions with Urine of Pregnant Women.—The quantitative determinations were performed as follows:

Increasing dilutions were made with each specimen in such a manner that each one of them contained 4, 2, 1, 0.5, 0.25 and 0.125 cc. of the urine in a total volume of 8 cc. With each one of these dilutions, 2 toads were given injections—12 in total—twenty-four hours after the minimum quantity of urine which produced positive reaction was established.

In order to make approximate comparative estimation of the content of international units of chorionic gonadotropin per liter of urine, it was assumed, on the basis of experiments the results of which are described further on, that approximately 40 international units of chorionic gonadotropin per toad are needed to obtain positive results. Sixty quantitative determinations were performed: in 17 cases with urine of women pregnant less than one month, in 31 cases from one to three and a half months, in 11 cases with specimens of urine of women pregnant more than three months and in 1 case of chorioepithelioma. The results obtained are seen in the table. It is interesting to note that a larger number of positive results were obtained in pregnancies of one to three and a half months of evolution, in which

13. Galli-Mainini.[1] Footnote 5a-m. Mayer, Govi and Flores.[5]

period 4 pairs of toads gave positive results with 0.125 cc. of urine; the specimens of urine contained roughly the equivalent of 320,000 international units of chorionic gonadotropin per liter, a quantity equal to that estimated in the case of chorioepithelioma.

Experiments not published yet show that Bufo d'Orbigny is more sensitive than Bufo arenarum Hensel, since positive reactions are obtained with this animal by injecting 0.015 cc. of urine. This animal, due to his greater sensitivity, is probably the most adequate for quantitative determinations.

Duration of the Gonadotropic Activity of Urine.—Quantitative determinations were performed daily, according to the described technic, and it was observed that the specimens of urine keep a great part of their gonadotropic activity even ten days after their emission, when they are kept at room temperature or at 4 C. (39.2 F.). For instance, positive results were obtained the first day with 1 cc. of a specimen of urine and ten days later with 2 cc. of the same specimen.

The same observation was made by Gori,[8k] who noted gonadotropic activity in 8 specimens of urine after they had remained at room temperature for seven days.

Conditions and Factors Related to the Gonadotropic Action in the Male Batrachia.—Some of the factors related to the test have been experimentally studied by me,[14] Houssay [5d] and Pinto and me.[15] The complete data on these experiments have been published elsewhere and are not reported here.

Specificity of the Reaction.—Positive Results: Up to the date of writing, positive results have been obtained with chorionic, serous and pituitary gonadotropins, with a follicle-stimulating hormone preparation from bovine pituitary gland (Dr. Mendive) and with crude suspension or implantation of pituitaries from the rat, rabbit and other batrachia.[16]

Chorionic gonadotropins produced positive results in male toads after removal of the brain, lungs, gastrointestinal tract, pancreas, spleen and pituitary gland.[5d] Pinto and I [15] observed positive reactions following the injection of chorionic gonadotropin, or pregnancy urine, even seventy-eight days after the pituitarectomy.

It has been observed [5b] that the hepatectomy enhances the capacity of the toad to react to smaller doses of chorionic gonadotropin.

Destruction of the medulla, unilateral castration and anesthesia do not abolish the reaction to the administration of chorionic gonadotropin and pregnancy urine.[17]

Experiments were performed in vitro by Burgos and Mancini,[18] and they observed, on histologic study, free spermatozoa when the medium contained chorionic or serous gonadotropin or crude suspension of toad pituitary.

Negative Results: Consistently negative results followed the injection of 623 specimens of urine from nonpregnant women, men and children, who were in normal health or who had a variety of pathologic conditions. The same results were attained by others with a total of 543 control specimens of urine.[12]

The injection of concentrated or unconcentrated urine from women in menopause or castrated women gave negative results.[8b]

No response was observed to the injection of different doses of estradiol benzoate, progesterone, testosterone propionate, desoxycorticosterone, "pitressin" N. N. R., thyroxin, adrenalin and prolactin.[19] These observations were confirmed by Houssay,[5d] who also noted negative results following the injection of adrenocorticotropin, corticotropin, pituitary gland from cattle, dog, swine, guinea pig, cat and Crotalus terrificus, urine from pregnant rat, ascorbic acid, crude suspension of liver, kidney, adrenals, spleen, heart, muscle, gastrointestinal tract and pituitary intermediate lobe from Bufo arenarum Hensel. Negative results were obtained injecting methylene, zinc sulfate and serum from pregnant cow.[20] This last result was also obtained by Mayer, Govi and Flores,[6] in addition to negative responses after injection of urine and serum from pregnant mare and swine.

Minimal Necessary Doses of Gonadotropin.—I [5b] studied the response of the toad to different amounts of chorionic gonadotropin. Two hundred and fourteen toads, kept at 15 to 18 C. (59 to 64 F.), received 1, 10, 20, 30, 40, 50, 100, 500, 1,000 and 1,500 international units by injection, and it was noted that 40 international units produced 90 per cent positive results, while with 30 international units only 18 per cent positive responses were obtained. From this experiment it is assumed that the minimal necessary dose is grossly 40 international units of chorionic gonadotropin, if given by injection to a normal toad. This quantity is reduced to 10 international units if hepatectomized toads are used. In 54 such animals, the injection of 10 units gave 82 per cent positive results. When serous gonadotropin is injected, higher doses are necessary to obtain positive results.

Route of Administration.—The intracardiac injection on small doses of chorionic gonadotropin was observed to be more effective than the subcutaneous, intramuscular or intraperitoneal injection. No effect followed the administration of 100 international units, or 10 cc., of pregnant urine by gastric route.

Effect of the Temperature.—Temperature is a modifying factor on the response of the toad to the administration of gonadotropin. It has been observed [20] that low temperatures, as 4 or 5 C. (39 or 41 F.), will inhibit the response only when minimal doses are injected. With pregnancy urine or higher doses of chorionic gonadotropin, positive responses are delayed but not inhibited.

Speed of the Reaction.—Spermatozoa are usually observed in the ureter of the toad within ten minutes following the injection of large doses of chorionic gonadotropin and can be obtained from the bladder within twenty to sixty minutes. The reaction takes place more slowly when serous gonadotropin is injected.[21]

Effect of Illumination.—Forty toads were exposed to the light for twenty-four hours and inoculated with small doses of chorionic gonadotropin, and the results compared with those obtained in 40 toads kept in total darkness for the same length of time and treated in similar manner. The results show that these last toads reacted to smaller doses and for a longer time than the ones exposed to the light. However, illumination is not a factor to be taken into consideration when pregnancy urine is injected, as identical results are obtained with toads exposed to the light or kept in darkness. This fact is probably due to the high gonadotropic titer of pregnancy urine.

14. Galli-Mainini.[5b]
15. Galli-Mainini, C., and Pinto, R. M.: Read before the meeting of the Sociedad argentina de biologia, Nov. 6, 1947; to be published.
16. Galli-Mainini.[5b] Houssay.[5d]
17. Galli-Mainini.[5b,c] Houssay.[5d]
18. Burgos, M. H., and Mancini, R. E.: Rev. Asoc. med. argent. **61**: 918, 1947; Rev. Soc. argent. de biol. **23**: 165, 1947.
19. Galli-Mainini.[5,6b,c]
20. Galli-Mainini.[6b,c]
21. Galli-Mainini.[5,6c] Houssay.[5d]

COMMENT

Previous studies, the result of the pregnancy test and the physiologic experiments indicate that the gonadotropic stimulation in the male batrachia has a direct effect on the testicle, where its targets are the interstitial cells, the spermatogenesis and the Sertoli cells. The reaction develops quickly; it is specific for some gonadotropins, and the response is slightly different when chorionic, serous or pituitary gonadotropins are injected.

An interesting fact is the quick response of the Sertoli cells to gonadotropins. Practically, it can be said that the presence of spermatozoa in the batrachian urine is indirect proof that the injected substance has acted on these cells.

This phenomenon, the characteristics of the batrachia as sturdy experimental animals and the speed, simplicity and net end point of the gonadotropic effect, indicate that the male batrachia are useful reacting animals and opens a new field for interesting investigations.

The data of the pregnancy reaction suggest that this new biologic test possesses advantages when compared with the present usual tests.

Specificity.—When urine was injected, positive reactions have been obtained exclusively with urine from pregnant women or with chorioepithelioma or hydatiform mole. The fact that in 1,166 cases control tests gave 100 per cent correct results indicates that, up to the date of reporting, a false positive result never occurred. On the other hand, pregnancy tests were performed in 2,661 cases in all, and results obtained were correct in 98 to 100 per cent.

Speed of the Reaction.—A high percentage of the results can be obtained within three hours following the injection of urine. The present percentage is 89 per cent within two hours according to my studies, 96 per cent positive results and one and a half hours according to Blanchard and Bretto [8a] and 100 per cent three hours after the injection of urine according to Sala and his co-workers.[5b]

Simplicity of the Technic.—The performance of the test is simple because: (*a*) No special preparation of the urine to be injected is needed; (*b*) the injection is without difficulties; (*c*) the collection of the toad's urine is simple, and no surgical intervention is needed; (*d*) the microscopic observation is immediate, without previous histologic procedures; (*e*) the microscopic differentiation of spermatozoa is simple because of their number and well defined characteristics of structure and movement, and (*f*) the several steps of the technic can be performed rapidly—usually one observation will not take more than one minute from the moment that the toad is taken from the cage until the result is established.

Clear End Point.—The positivity of the reaction is clearly indicated by the presence of spermatozoa in the toad's urine. Spermatozoa are absent in urine of toads which did not receive injections or received injections with urine of nonpregnant subjects.

Economy.—The economy of the procedure is due not only to the low cost of the toad but also to the fact that no special care is needed, i. e., in matters such as food, handling and personnel. In addition, the same toad can be used again after an interval of one week.

CONCLUSIONS

1. Studies made on the male toad indicate that it is a good reacting animal to gonadotropins.

2. Gonadotropic administration stimulates the interstitial cells and the spermatogenesis and produces detachment of spermatozoa from the Sertoli cells. Free spermatozoa migrate to the bladder and can be obtained by means of a pipet introduced into the cloaca.

3. Up to the time of reporting, this response has been provoked with chorionic, serous and pituitary gonadotropins and with crude suspensions of pituitary gland from other batrachia, the rat and the rabbit.

4. The reaction of the testicles to gonadotropic stimulation is, to some extent, influenced by the dose, the route of administration, the temperature and the illumination.

5. The phenomenon of detachment and migration of spermatozoa has practical application in the diagnosis of pregnancy by means of a new test used on the male batrachia. The presence of spermatozoa in a drop of toad's urine a few hours after the injection of 10 cc. of urine from a pregnant woman indicates a positive result.

6. Results seem to be specific for urine of pregnant women because negative results are constantly obtained when urine from nonpregnant subjects is used.

7. In 2,661 cases, tests made with urine of women suspected to be pregnant yielded correct results in 98 to 100 per cent.

8. A modified technic of this test has proved to be useful for quantitative gonadotropic determinations.

9. This reaction has the advantages of specificity, speed, simplicity, clear end point and economy.

SUMMARY

Results obtained with a new test for the diagnosis of pregnancy in which normal male batrachia are used are reported. A positive result is indicated by the presence of spermatozoa in the animal's urine after the injection of 10 cc. of urine from pregnant women. Accumulated data show 98 to 100 per cent correct results in pregnancy tests in 2,661 cases and 100 per cent exact negative response in 1,166 cases in which control tests were made with urine from nonpregnant subjects. Quantitative aspects were studied as well as the influence of such factors as illumination, temperature, dose of chorionic gonadotropin, method of injection, gonadotropin of different species, total hepatectomy and injection of hormones and substances.

This pregnancy test has the advantages of specificity, simplicity, speed of the reaction, clear end point and economy.

Lafinur 3339, Buenos Aires, Argentina.

We Need to Be Humble.—In all aspects of medicine we need to be humble. We can be proud of what has been accomplished . . . so long as it does not blind us to the fact that most progress has occurred in relation to acute diseases. Despite great advances in the control of bacterial diseases, and however great such advances may be in the future, medical science must always go forward. It is remarkable . . . that no sooner is the cure or control of one disease accomplished than new problems appear to arise. . . . At one time it seemed that gonorrhea could be almost controlled with the sulphonamides, but nowadays it is recognized that a large proportion of cases, many more than hitherto, are sulphonamide-resistant. Is this an example of the aphorism "Make haste to use a new remedy before it is too late," or is it that bacteria are really capable of rapid adaptation? The latter is probably the truth. In due course penicillin-resistant staphylococci may become common, whereupon the whole search must begin again. Likewise with streptomycin, to which resistance appears to be quickly established.—Sir Lioneel Whitby, M.D., *British Medical Journal*, July 3, 1948.

Clinical Notes, Suggestions and New Instruments

OUR NATIONAL PARKS AS RAGWEED HAY FEVER REFUGES

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The accompanying tabular data on the ragweed pollen hazards in the national parks were secured over a period of thirteen years, during which I made field studies and carried out routine atmospheric pollen tests for one or more seasons in each of the parks and areas herein listed, except as noted. Most of the atmospheric tests have been made by the standard technic recommended by the Aero-Allergen Council of the American Academy of Allergy.[1] The figures for "days of high incidence" refer to the average number of days per season when the ragweed pollen concentration reached or exceeded 25 pollen granules per cubic yard of air. "Maximum atmospheric concentration" refers to the highest number of ragweed pollen granules per cubic yard of air during any one twenty-four hour period. A "seasonal total" is the cumulative figure obtained by adding the number of ragweed pollen granules per cubic yard for each day throughout the season. The "index" figure is an arbitrary rating based on the three factors: average length of season, maximum concentration and average seasonal total.[2] Areas with an index rating of 10 or more cannot be recommended as suitable for those seeking relief from ragweed hay fever. Preference should be given to parks with indexes less than 5. These may be rated from "fair" to "good." Those areas with indexes less than 1 are excellent ragweed refuges unless heavily infested with sagebrush. It will be noted that the parks of the Rocky Mountain, Cascade, Olympic and Sierra regions are almost entirely free from airborne ragweed pollen.

From the Abbott Laboratories, North Chicago, Ill.

The field and atmospheric surveys in this series were made possible by the following organizations: American Academy of Allergy, Abbott Laboratories, Curtis Publishing Company, Glacier Park Hotel Company, Glacier Park Transport Company, Grand Canyon-Boulder Dam Tours, Inc., Great Northern Railway, Mesa Verde Company, United Air Lines, United States Department of the Interior (National Park Service), United States Weather Bureau, Utah Parks Company (Union Pacific Railroad), Western Air Express, Yellowstone Park Company and Yosemite Park and Curry Company.

1. Preliminary Report of the National Pollen Survey Committee of the American Academy of Allergy on Proposed Standardization of Pollen Counting Techniques, J. Allergy **17**: 178 (May) 1946. Durham, O. C.: The Volumetric Incidence of Atmospheric Allergens: IV. A Proposed Standard Method of Gravity Sampling, Counting, and Volumetric Interpolation of Results, ibid. **17**: 79 (March) 1946.

2. Durham, O. C.: Evaluation of the Ragweed Hay Fever Resort Areas of North America, J. Allergy **8**: 175 (Jan.) 1937.

Atmospheric Ragweed Pollen Data for National Parks and Recreational Areas

National Park	Altitude at Sampling Apparatus	Months of Greatest Contamination	Number of Days of High Incidence per Season	Maximum Atmospheric Concentration	Average Seasonal Total Count	Ragweed Pollen Index	Remarks
Acadia (Bar Harbor)*	Sea level	Aug.-Sept.	5	76	426	8.00	Some ragweed pollen blown into area; conditions only fair
Bryce Canyon †	7,575	Sept.	..	..	...	0.20	Index figure deduced from local inspection and Zion figure
Crater Lake	6,500	Aug.	0	4	7	0.022	Only a trace of sagebrush pollen; excellent ragweed refuge
Everglades †	Sea level	Aug.-Sept.	..	..	...	1.00	Index figure deduced from Southern Florida records and local inspection
Glacier							
Belton	3,200	Aug.	0	5	11	0.10	Only traces of ragweed or sage pollen; excellent ragweed refuge
Many Glacier	4,800	Aug.	0	2	9	0.07	Only traces of ragweed or sage pollen; excellent ragweed refuge
Grand Canyon							
South Rim	4,800	Sept.	0	4	16	0.12	Small amount of sagebrush; excellent ragweed refuge
North Rim †	5,700	Sept.	..	..	...	0.12	Conditions deduced from South Rim data; probably better
Grand Teton †	6,700	Aug.-Sept.	..	..	...	0.30	Index figure deduced from Yellowstone data; recommended
Great Smoky Mountains							
Headquarters	1,460	Aug.-Sept	9	70	582	13.00	To be avoided by all ragweed sufferers during August and September
Newfound Gap	5,045	Aug.-Sept.	3	32	206	4.00	No hotel or camp facilities on ridge; to be avoided by all ragweed sufferers during August and Sept.
Hawaii †	Up to 13,675	.....	..	..	...	0.00	Conditions judged from field surveys
Hot Springs †	620	Aug.-Oct.	..	..	...	38.00	To be avoided by all ragweed sufferers from August to October
Isle Royale *	620	Aug.-Sept.	1	48	133	2.00	Very good most of the time; pollen on south winds only
Kings Canyon †	4,600	.....	..	..	...	0.05	Only bare traces ragweed or sage pollen; excellent ragweed refuge
Lassen Volcanic	5,000	.....	0	2	3	0.032	Only trace of sagebrush; excellent ragweed refuge
Mammoth Cave †	700	Aug.-Oct.	..	..	...	80.00	To be avoided by all ragweed sufferers August to October
Mount McKinley ††	Up to 20,000	.....	..	..	...	0.00	Rating deduced from air data taken at 3 Alaska stations (Durham, O. C.: Atmospheric Allergens in Alaska, J. Allergy **12**: 307 [March] 1941)
Mount Rainier							
Longmire	2,761	.....	0	0	0	0.00	Perfect record for one season; excellent ragweed refuge
Paradise	5,557	Aug.	0	6	12	0.12	Probably average equals that of Mount Rainier; excellent ragweed refuge
White River	3,500	.....	0	2	4	0.030	No sagebrush; excellent ragweed refuge
Olympic	50	Aug.	0	4	...	0.05	Figures for August incomplete; no sage; recommended ragweed refuge
Platt *	800	Aug.-Oct.	..	..	...	75.00	To be avoided by all ragweed sufferers middle of August to late October
Rocky Mountain							
Estes Park	8,000	Aug.-Sept.	0	15	149	1.00	Some sagebrush; ragweed sufferers rarely have difficulty
Grand Lake	8,000	Aug.-Sept.	0	8	19	0.18	Some sagebrush; ragweed sufferers rarely have difficulty

Atmospheric Ragweed Pollen Data for National Parks and Recreational Areas—Continued

National Park	Altitude at Sampling Apparatus	Months of Greatest Contamination	Number of Days of High Incidence per Season	Maximum Atmospheric Concentration	Average Seasonal Total Count	Ragweed Pollen Index	Remarks
Sequoia	6,412	.....	0	2	3	0.03	Only bare traces ragweed or sage pollen; excellent ragweed refuge
Shenandoah *†	600 to 4,000	Aug.-Sept.	..	..	...	20.00	To be avoided by all ragweed sufferers during August and September
Yellowstone							
Mammoth	6,387	Aug.-Sept.	0	6	20	0.16	Sagebrush abundant; ragweed sufferers rarely affected; recommended
West Yellowstone	6,655	Aug.-Sept.	0	4	48	0.28	Sagebrush abundant; ragweed sufferers rarely affected; recommended
Yosemite	4,000	Aug.-Sept.	0	4	50	0.29	No local ragweeds; very little sage; excellent ragweed refuge
Zion	4,448	Sept.	0	5	56	0.33	Trace of ragweed March and April; very little sagebrush; excellent refuge
Other Areas							
Lake Mead National Recreational area	1,000	Mar.-Apr.	2	54	380	4.00	Some ragweed in spring, trace in fall; good rating
Black Hills area †	5,000	July-Sept.	..	..	...	15.00	To be avoided by all ragweed sufferers July to September
Sun Valley	6,000	Aug.-Sept.	0	15	90	0.25	Sagebrush abundant; ragweed sufferers rarely affected; recommended

* Field study omitted. † Atmospheric data as of some adjacent comparable area.

SUDDEN DEATH FOLLOWING INTRAVENOUS ADMINISTRATION OF "DIODRAST"

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The basis for this report is a fatality subsequent to the intravenous administration of iodopyracet injection ("diodrast"). The incidence of such fatalities is rare. Pendergrass and his co-workers,[1] in 1942, following a fatal reaction to iodopyracet injection at the University of Pennsylvania, made a survey of this diagnostic procedure throughout the United States and Canada. They sent out three thousand questionnaires to radiologists and urologists and received a report on 661,800 urographic examinations. In analyzing these reports, they encountered twenty-six unreported fatal reactions to iodopyracet injection in addition to eleven fatalities that had been reported in the literature up to that time. This represented an incidence of one fatality to twenty-five thousand injections. They reported two types of deaths: (1) immediate, due to allergy to the drug, and (2) delayed, due to preexisting major renal damage. Eleven of twenty-six deaths were immediate deaths, occurring in an average time of thirty minutes subsequent to the injection. All of the immediate deaths were of patients who had received iodopyracet injection. None of the patients who died had been subjected to the recently proposed tests for sensitivity to the drug. Pendergrass stated that no immediate deaths had been reported following retrograde pyelography with any contrast mediums.

Deaths following the intravenous administration of iodopyracet injection have also been reported by Crane,[2] Cumming and Chittenden,[3] Dolan [4] and Goldburgh and Baer.[5]

REPORT OF A CASE

C. F. a 23 year old white man was admitted to the 189th General Hospital in Mourmelon, France, on Oct. 2, 1945, with the chief complaint of blood-tinged urine of three days' duration. The patient stated that he had been involved in an automobile accident three days prior to admission and had sustained injury at the time to the left upper quadrant of the abdomen and the lower left anterior costal margin. Subsequent to the accident, the patient had noted blood-tinged urine. There were no other urinary symptoms.

Past history revealed that the patient's general health had been good. There was no history of any previous allergic manifestations. There was no history of any previous serious illnesses or operations.

Physical examination revealed a well developed well nourished 23 year old white man who did not appear acutely or chronically ill. He was alert, cooperative and ambulatory. His blood pressure was 140 systolic and 90 diastolic. The heart and lungs were normal. Examination of the thorax revealed moderate tenderness over the left lower ribs anteriorly. Examination of the abdomen revealed no tenderness or rigidity. No masses were noted. There was no costovertebral angle tenderness. The kidneys and spleen were not palpable. The genitalia were normal. Results of the rectal examination were negative.

Laboratory studies revealed that the urine was grossly clear at the time of admission, with a specific gravity of 1.020, no sugar and no albumin. Microscopic examination revealed 10 to 15 red blood cells per high power field. The blood cell count was within normal limits. Blood urea nitrogen was 16 mg. per hundred cubic centimeters.

The clinical impression at the time was that the patient had a contusion of the left lower costal region anteriorly. The possibility of injury to the left kidney was also considered, and an intravenous pyelogram was ordered.

On October 3, the patient was referred to the x-ray department for an excretory pyelogram. Twenty-five cubic centimeters of a 35 per cent sterile aqueous solution of iodopyracet injection was administered intravenously. The drug was given slowly over a period of five minutes. The injection itself was completed without incident. Approximately three minutes after the injection, however, the patient suddenly began to vomit, and he stated that he felt "numb all over." One cubic centimeter of epinephrine was given immediately. The patient at the time evidenced a rapid thready pulse and decided cyanosis. The patient was returned to the ward, and oxygen was administered. Despite all supportive measures, which consisted of administration of oxygen, epinephrine and nikethamide, the patient's cyanosis became more apparent and his respirations became very irregular. The degree of shock increased, and the patient died twenty minutes subsequent to the iodopyracet injection. Clinical impression at the time was that death was an allergic reaction due to iodopyracet injection.

An autopsy was performed the same day by Dr. S. Shuback, with the following observations. There was decided congestion and edema of all the viscera. The lungs revealed scattered subpleural petechial hemorrhages over all the surfaces. The

1. Pendergrass, E. P.; Chamberlain, G. W.; Godfrey, E. W., and Burdick, E. N.: Survey of Deaths and Untavorable Sequelae Following the Administration of Contrast Media. Am. J. Roentgenol. **48**: 741-765 (Dec.) 1942.
2. Crane, J. J.: Sudden Death Following the Intravenous Administration of Diodrast for Intravenous Urography, J. Urol. **42**: 745-760 (Nov.) 1939.
3. Cumming, R. E., and Chittenden, G. E.: Intravenous and Retrograde Urography: Comparative Study, J. A. M. A. **106**: 602-606 (Feb. 22) 1936.
4. Dolan, L. P.: Allergic Death Due to the Intravenous Use of Diodrast, J. A. M. A. **114**: 138-139 (Jan. 13) 1940.
5. Goldburgh, H. L., and Baer, S.: Death Following the Intravenous Administration of Diodrast, J. A. M. A. **118**: 1051-1052 (March 28) 1942.

heart was normal. The gastrointestinal tract revealed internal cyanosis of the mucosa. The brain also revealed many small petechial hemorrhages throughout the white matter.

COMMENT

On the basis of the postmortem observations presented in this case, it was felt that this fatality was allergic in origin. Allergic manifestations to iodine are not rare. This fact must be constantly kept in mind with the administration of iodopyracet injection. In order to forestall such reactions, I have adopted the following precautions in administration:

1. The patient is questioned carefully with regard to any previous history of allergic manifestations: asthma, hay fever, hives, rose colds, excessive sneezing, excessive headaches, headaches due to drugs, previous iodine medication and previous excretory pyelography. The patient should also be questioned with regard to any family history of allergy.

2. A cutaneous test is performed, employing 0.05 cc. of undiluted iodopyracet injection intradermally. Naterman and Robbins [6] reported 404 patients whom they tested in this manner, following this with an intravenous pyelogram. On the basis of their study, they expressed the belief that if the reaction to an intradermal test is strongly positive, with a wheal larger than approximately 15 mm., a serious general reaction may be expected. In those cases in which a local reaction to an intradermal test does occur, reaction occurs quickly following the injection and reaches a maximum in ten to fifteen minutes.

3. An oral test with undiluted iodopyracet injection is also performed. One to two cubic centimeters of the medium is placed under the patient's tongue and retained there for ten minutes, and then the patient is instructed to swallow. If the patient is sensitive to the drug, within a few minutes numbness about the face, swollen tongue and respiratory difficulty may develop. Dolan [4] expressed preference for the oral rather than the cutaneous test. It has been my practice not to perform an intravenous pyelography if there is a definite history of allergy or if intradermal or oral tests elicit a positive reaction.

4. The drug is administered slowly; 1 cc. of contrast medium is injected intravenously, and then two minutes are permitted to elapse, during which period the patient is observed carefully. If there is no undue reaction, the remainder of the drug is administered slowly over a period of five minutes. Not infrequently, the patient may note a fleeting sensation of warmth. If the patient evidences any nausea, vomiting or respiratory difficulty, the injection had best be quickly discontinued.

5. An emergency tray is kept in the same room where the medium is being administered. This tray should contain: a 2 cc. syringe, hypodermic needles, a no. 19 gage needle, a tourniquet, an airway, an ampule file, a rubber-capped bottle of epinephrine (1 to 1,000), a rubber-capped bottle of atropine, ampules of caffeine sodium benzoate and calcium gluconate.

6. The patient should have either a nonprotein nitrogen or urea nitrogen determination prior to excretory pyelography. In the presence of decided renal impairment, evidenced by nitrogen retention, there is greater possibility of a reaction.

7. Patients with decided jaundice may be likely to have a reaction since some iodopyracet injection is eliminated by the liver.

8. Repeated urographic examinations may finally lead to a reaction.

Archer and Harris [7] described ocular tests for determining sensitivity to iodopyracet injection prior to excretory pyelography. They employed an ocular test in 600 cases to determine sensitivity, and they observed this test to be more sensitive than either the oral or intradermal test.

Robb and Steinberg [8] in 1939 reported interesting studies with iodopyracet injection as a contrast medium in the visualization of the chambers of the heart and the greater blood vessels. Their studies would serve to indicate that iodopyracet injection was relatively nontoxic and inert. The relevant feature of their work is that they administered intravenously 25 to 45 cc. of a 70 per cent solution of iodopyracet injection in a period of two seconds. This dosage represents a range of 17.5 to 31.5 Gm. of iodopyracet injection in contrast to the 7 Gm. ordinarily employed for excretory pyelography. This large dose was injected extremely rapidly in this manner in 238 instances without fatality. In a recent communication, Dr. G. P. Robb stated that iodopyracet injection had now been administered in the aforementioned method for angiocardiography in over 800 cases. He reported that thus far there had been no fatalities and in only 5 or 6 cases was there a serious reaction. He stated further that he was regularly administering 1 cc. of a 70 per cent solution of iodopyracet injection intravenously to test for sensitivity.

SUMMARY

A case report of sudden death following the intravenous administration of iodopyracet injection ("diodrast") is presented. Precautionary measures in the use of iodopyracet injection are outlined.

94 Market Street.

6. Naterman, H. L., and Robins, S. A.: Cutaneous Test with Diodrast to Predict Allergic Systemic Reactions, J. A. M. A. **119**: 491-493 (June 5) 1942.

7. Archer, V. W., and Harris, I. D.: An Ocular Test for Sensitivity to Diodrast Prior to Intravenous Urography, Am. J. Roentgenol. **48**: 763-765 (Dec.) 1942.

8. Robb, G. P., and Steinberg, I.: Visualization of the Chambers of the Heart, Pulmonary Circulation and Great Blood Vessels in Man: Practical Method, Am. J. Roentgenol. **41**: 1-17 (Jan.) 1939.

Council on Foods and Nutrition

This paper was prepared at the request of the Council on Foods and Nutrition. JAMES R. WILSON, M.D., *Secretary.*

PASTEURIZATION AND ITS RELATION TO HEALTH

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The importance of pasteurization in safeguarding milk supplies has been demonstrated conclusively over a long period of years. That raw milk can and does transmit disease and that pasteurization prevents such transmission has been proved to the satisfaction of health authorities by laboratory and commercial scale experimental work, by epidemiologic methods, by statistical methods and by animal experimentation.[1] More than five hundred and fifty American municipalities now require the pasteurization of all milk or of all except certified milk,[2] and action on a statewide basis recently has been taken by Utah, Michigan and Colorado.

REVIEW OF REPORTS

From time to time, however, the merits of pasteurization are challenged. One of the most recent attacks was embodied in a series of three articles in *The Rural New Yorker* and reprinted at the request of the Pennsylvania Raw Milk Producer-Distributors Association.[3] As such attacks may do harm to the public health by tending to discourage the use of pasteurized milk, it is important that physicians be armed with the facts.

The literature is replete with accounts of outbreaks of milk-borne disease. Armstrong and Parran [4] listed

Sanitary Engineer (R) (Mr. Andrews) and Sanitary Engineer Director (Mr. Fuchs), Milk and Food Section, United States Public Health Service.

1. Fuchs, A. W.: Milk and Its Relation to Disease, Federal Security Agency, United States Public Health Service, 1940.

2. List of American Communities with Compulsory Pasteurization, Federal Security Agency, United States Public Health Service, October 1946.

3. Darlington, J. B.: Why Milk Pasteurization? New York, The Rural New Yorker, 1947.

4. Armstrong, C., and Parran, T.: Further Studies on the Importance of Milk and Milk Products, as a Factor in the Causation of Outbreaks of Disease in the United States, Supplement 62, Public Health Reports, United States Treasury Department, Public Health Service, 1927.

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seven hundred and ninety-one outbreaks of milk-borne disease in the United States as having been reported in the literature from Jan. 1, 1881, to Jan. 1, 1927. Beginning in 1923, the United States Public Health Service has made annual questionnaire surveys. For the twenty-three year period 1923-1945, state and local health authorities reported a total of nine hundred and fifty-five epidemics traced to milk and milk products, as shown in the table.[5]

Thus, during the period 1923-1945, there has been reported an annual average of forty-one outbreaks, involving 1,750 cases with 35 deaths. These data represent only a fraction of the actual amount of disease transmitted through milk and milk products. The reporting of outbreaks is probably far from complete, as is indicated by the fact that for 1938, for example, three states with only about one sixth of our population reported nearly as many outbreaks as all other states combined and that thirty-one states failed to report any outbreaks due to milk.[6]

The data given in the table do not include sporadic cases of such diseases as typhoid, scarlet fever and

Milk-Borne Disease Outbreaks Reported by State and Local Health Authorities as Having Occurred in the United States During the Years 1923-1945, Inclusive, by Disease

Disease	Outbreaks	No. of Cases	No. of Deaths
Typhoid	440	7,449	541
Scarlet fever and septic sore throat	202	19,150	182
Food poisoning and gastroenteritis	106	9,780	79
Brucellosis (undulant fever)	54	275	3
Paratyphoid	37	1,003	22
Dysentery	20	1,413	20
Diphtheria	18	324	13
Miscellaneous	18	683	4
Total	955	40,177	804

septic sore throat, many of which may be milk borne. Furthermore, they do not include tuberculosis of bovine origin, infantile diarrhea nor any significant amount of brucellosis (undulant fever), all of which are largely milk borne but which usually occur as sporadic cases rather than in epidemic form. For 1945, about 5,049 cases of brucellosis and 101 deaths were reported in the United States. A considerable proportion of these cases, perhaps half, are believed to have been due to raw milk from infected animals. It is obvious that the actual amount of milk-borne disease is several times that indicated in the table.

The vast majority of the reported outbreaks of milk borne disease are due to raw milk and milk products. The reports received by the Public Health Service show that the risk of contracting disease from raw milk is approximately fifty times as great as from pasteurized milk (including milk which was only alleged to be "pasteurized milk").[7]

Pasteurization is the most important protective measure which can be applied to milk. Examination of cows and milk handlers, while desirable and of great value, can be done at intervals only, and, consequently, pathogenic organisms may enter the raw milk for varying periods before the condition is discovered. Raw milk may also become contaminated by disease bacteria from other sources, such as flies and contaminated water and utensils, and no practicable frequency of inspection would prevent such contamination. It is not feasible to perform routine bacteriologic tests on raw milk to determine the presence or absence of all the pathogens which might be present. Even if simple test procedures were available, it is difficult to visualize any practicable testing frequency that would give positive assurance that the raw milk would always be free from infection. Accordingly, it is obvious that milk should be pasteurized to make it safe. This viewpoint is supported by the practically unanimous opinion of medical, public health and nutritional authorities.[8]

Pasteurization is performed by heating every particle of milk to at least 143 F. and maintaining this temperature for at least thirty minutes, or to at least 160 F. maintained for at least fifteen seconds. It has been proved that these time-temperature combinations, if actually applied to every particle of milk in approved and properly operated equipment, will devitalize all milk-borne pathogens.[9]

That pasteurization is economical and feasible has been proved by its widespread use. More than 75 per cent of the market-milk supply of American communities of over 1,000 population is pasteurized.[10] The objections that have been raised to pasteurization are unsound. The average consumer is not able to detect any flavor difference when asked to choose, on "blindfold test," between raw and pasteurized samples of high quality milk from the same source. Pasteurization does not, as recently charged, destroy the "friendly bacteria" while leaving the pathogens unharmed.

Although pasteurization is a heat treatment far less severe than that given to most foods during cooking, it is often claimed that pasteurization seriously reduces the nutritive value of milk, and various experimental results purporting to show injury to individual constituents of milk are often cited. Actually, definite reductions of nutritive elements due to pasteurization have been proved in only a few instances, and these reductions have not been shown to affect significantly the over-all value of milk in the diet.

Some investigators have reported that there is a slight loss of calcium due to pasteurization; another found no discernible difference between raw and pasteurized milk, and still others observed that calcium and phosphorus were as readily available in pasteurized as in raw milk.[11] The alleged losses of calcium are less than the natural variations of calcium in raw milk. Also, it might be pointed out that cow's milk, even if the alleged losses be accepted for the sake of argument, is nevertheless a much richer source of calcium than human milk.

5. Summary of Milk-Borne Disease Outbreaks Reported by State and Local Health Authorities as Having Occurred in the United States During the Years 1923-1945, Inclusive, Federal Security Agency, United States Public Health Service, April 1947.

6. Frank, L. C.: Disease Outbreaks Resulting from Faulty Environmental Sanitation, Pub. Health Rep. **55**:1373-1383 (Aug. 2) 1940.

7. Fuchs, A. W.: Disease Outbreaks from Water, Milk and Other Foods in 1939, Pub. Health Rep. **56**:2277-2284 (Nov. 28) 1941.

8. Fuchs,[1] Rosenau, M. J.: Preventive Medicine and Hygiene, ed. 6, New York, D. Appleton-Century Company, Inc., 1940. Preliminary Report of Committee on Milk Production and Control, White House Conference on Child Health and Protection, Public Health Service and Administration, Pub. Health Rep. **46**:769-811 (April 3) 1931. Babcock, C. J.: The Pasteurization of Milk, Leaflet 177, United States Department of Agriculture, January 1939. Godfrey, E. S.: Pasteurization of Milk, Bulletin M. S. 53, New York State Department of Health, 1945. Frank, L. C.: What Every Person Should Know About Milk, Supplement 150, Public Health Reports, United States Treasury Department, Public Health Service, 1939.

9. Fuchs,[1] Milk Ordinance and Code Recommended by the U. S. Public Health Service, 1939, Public Health Bulletin 220, Federal Security Agency, United States Public Health Service, 1940.

10. Fuchs, A. W., and Frank, L. C.: Milk Supplies and Their Control in American Urban Communities of Over 1,000 Population in 1936, Public Health Bulletin 245, United States Treasury Department, Public Health Service, 1939.

11. (*a*) Status of Pasteurization of Milk and Milk Products: Report of the Milk and Dairy Products Committee, Food and Nutrition Section, American Public Health Association, Am. J. Pub. Health (supp.) **29**: 36-41 (Feb.) 1939. (*b*) Elvehjem, C. A.: Pasteurization and the Nutritive Value of Milk, University of Wisconsin, mimeographed.

Milk is not regarded as a good source of iodine, for the iodine content of milk is small and variable, ranging from 0.001 to 0.275 parts per million.[12] Nevertheless, a report that pasteurization causes a loss by volatilization of 20 per cent of the iodine in milk has been cited as evidence that pasteurization is detrimental to the food value of milk. Perusal of the original report reveals that the milk was held for thirty minutes at 158 F.—15 degrees above the present day pasteurization standards—and thus was subjected to a heat treatment considerably severer than the modern pasteurization process.[13]

No evidence has been found in the literature of any loss of vitamin A, or carotene,[14] or of any lowering of the vitamin D content[11a] due to pasteurization.

Although it is frequently claimed that vitamin B_1, or thiamine, is reduced 25 per cent by pasteurization, by the holder process, a reduction of about 10 per cent is oftener reported in the recent literature.[14] In a study in 1945,[15] a loss of only 3 per cent was reported in the case of milk pasteurized by the high temperature–short time method. With increasing interest in fortified flour and cereals, the slight loss of vitamin B_1 is of little significance.[11b]

It has been claimed that pasteurization destroys from 9 to 16 per cent of vitamin B_2. Perusal of the original report reveals the statement:

> Since it is customary, during commercial processing of milk, to carry out pasteurization by heating the raw milk in a thin film, during which time it may be exposed to light in the plant and therefore subject to considerable riboflavin destruction, the loss of the vitamin during this treatment has been investigated.[16]

In the United States it is almost universal practice to pasteurize market milk in pasteurizers which are completely covered, to exclude possible contamination, and it is therefore believed that the reported losses of 9 to 16 per cent would not occur under the latter conditions. In fact, recent reports generally agree that there is no significant loss of riboflavin as a result of pasteurization by either the high temperature–short time method or by the holding method.[14] For example, in the experiments in 1945 by Holmes and his co-workers[15] there was no loss in the riboflavin content of milk pasteurized by the high temperature–short time method, and it was reported that earlier studies by some of the same investigators revealed a loss of only 2 per cent when milk was pasteurized for thirty-three minutes at 144 F. in a stainless steel pasteurizer. Riboflavin is sensitive to light, and considerable loss of riboflavin results when milk is exposed to light, as in glass bottles left on the customer's porch in the sunlight for some time. However, it should be emphasized that these losses are not due to pasteurization.

Pyridoxine and nicotinic acid are very stable compounds, and, therefore, no loss of these factors is to be expected from pasteurization. Pantothenic acid is somewhat more labile, but preliminary results indicate that pasteurization does not inactivate it. Professor Peterson has determined the biotin content of milk before and after pasteurization and observed no difference.[11b]

Destruction of as high as 50 per cent of the vitamin C, due to pasteurization, has been claimed. The recent literature indicates that the destruction during pasteurization by the holder method is considerably less than 50 per cent and is probably in the neighborhood of 20 per cent.[17] Data given by Holmes and his co-workers[15] indicate vitamin C losses of 18.7 per cent and 18.3 per cent due to pasteurization of milk at 143 F. for thirty minutes in stainless steel pasteurizers. These figures represent the results obtained on two different mixed herd milks over eighteen month periods in 1938 and 1943. Elimination of copper from pasteurizing plant equipment is reducing the loss of vitamin C during pasteurization by the holder method, for traces of copper decidedly accelerate that action. Elvehjem stated that the presence of copper has a greater effect on vitamin C than heating.[11b] The experiments in 1945 of Holmes and his co-workers showed no loss of vitamin C due to pasteurization of milk by the high temperature–short time method. Vitamin C is adversely affected by oxygen and light, and there are numerous opportunities for loss of the vitamin in the production, processing and distribution of milk, raw or pasteurized. For example, Wilson[17a] referred to a study in which the vitamin C contents of grade A raw milk and of ordinary pasteurized milk after one day's storage were compared at different times of the year, and the average content actually was higher in the pasteurized milk than in the raw milk.

An adverse effect on vitamin E by pasteurization appears unlikely, in view of its resistance to heat treatment when present in wheat germ oil.[18] Elvehjem reported indications of a slight deficiency of vitamin E, and perhaps vitamin K, when dogs are maintained solely on heat-treated milk through the reproduction period,[19] but this observation does not appear to be of practical concern in human nutrition.

The effect of pasteurization on the mineral and vitamin constituents of milk may be summarized briefly as follows: No significant effect on the minerals of milk has been proved; vitamins A and D and pyridoxine, nicotinic acid, pantothenic acid and biotin are believed to be unaffected by pasteurization; vitamin B_2, or riboflavin, and vitamins E and K are practically unaffected; vitamin B_1, or thiamine, is reduced 3 to about 20 per cent, depending on the pasteurizing methods used, and vitamin C is reduced by an amount ranging from a small value to perhaps 20 per cent, depending on the methods and precautions observed in processing. Thus, the only appreciable losses are those of vitamins C and B_1, and these losses are not believed to be significant from the over-all nutritional standpoint. Milk is not a rich source of these vitamins, and adequate diets should contain foods other than milk, including such items as citrus fruits for vitamin C and whole grain or enriched products for thiamine.

COMMENT

It should be emphasized that milk is seldom used as the sole article of diet; hence, the physician is not so much interested in the precise quantitative effect of

12. Rogers, L. A., and others: Fundamentals of Dairy Science, New York, Reinhold Publishing Company, 1933.
13. Magee, H. E., and Glennie, A. E.: II. Studies on the Effect of Heat on Milk: IV. The Iodine Content, Biochem. J. **22**: 11-14, 1928.
14. Food Values of Dairy Products as Affected by Methods of Handling in Production, Distribution and Use: Report of Committee on Milk and Dairy Products, Food and Nutrition Section, American Public Health Association, Am. J. Pub. Health **37**: 1113-1120 (Sept.) 1947.
15. Holmes, A. D.; Lindquist, H. G.; Jones, C. P., and Wertz, A. W.: Effect of High-Temperature Short-Timed Pasteurization on the Ascorbic Acid, Riboflavin, and Thiamine Content of Milk, J. Dairy Sc. **28**: 29-33, 1945.
16. Zeigler, J. A., and Keevil, N. B.: Photochemical Destruction of Riboflavin in Milk and Losses During Processing, J. Biol. Chem. **155**: 605-606 (Oct.) 1944.
17. (a) Wilson, G. S.: The Pasteurization of Milk, London, Edward Arnold & Co., 1942. (b) Elvehjem.[11b]
18. Rogers and others.[12] Wilson.[17a]
19. Elvehjem.[11b] Anderson, H. D.; Elvehjem, C. A., and Gonce, J. E., Jr.: Comparison of Nutritive Values of Raw, Pasteurized, and Evaporated Milks for the Dog, J. Nutrition **20**: 433-443 (Nov.) 1940.

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pasteurization on individual constituents of milk as in the over-all nutritive value of pasteurized milk. Is pasteurized cow's milk as valuable as raw cow's milk in the diet of human beings? In order to determine the effect on growth of raw and pasteurized milk, many experiments have been conducted in America and England on children, calves, pigs, mice and rats. The experiments have been critically reviewed by Wilson,[19a] who summarized them essentially as follows: Many of the studies have been faulty in design and execution, and the conclusions cannot be accepted without reserve. It is difficult to make satisfactory comparisons, because cow's milk is not a perfect food for any of these animals. An exclusive milk diet for a prolonged period is likely to be followed by anemia, rickets, scurvy or other disturbances. However, several experiments have been carefully conducted between groups of animals fed on raw or pasteurized milk with just a sufficient supplement to prevent the development of nutritional disease. Experiments on rats have not established a definite diminution in the total nutritive value of cow's milk as a result of pasteurization. The observations on mice are difficult to interpret, since the behavior of the animals appeared to depend on the way in which the milk was fed, but suggest that if any difference does exist between raw and pasteurized milk, it must be small and could be determined only by the use of large numbers of animals. Experiments on a total of 250 calves by six different groups of workers produced conflicting individual results, but when all the observations were combined it was observed that the mean increase in weight of the animals receiving raw milk was 1.232 pounds (about 0.559 Kg.) per day as compared with 1.273 pounds (about 0.578 Kg.) per day for those receiving pasteurized milk. It was observed, incidentally, that pasteurization of tuberculous milk protected the calves from contracting the infection. In the most recent comparison in children, little difference was observed between those receiving raw and those receiving pasteurized milk. On the average, the children receiving raw milk gained slightly more in weight and those receiving pasteurized milk gained slightly more in height, but the differences were not significant.

Wilson concluded that the results of various experiments with different animals, including children, are in general accordance and fail to show that the pasteurization of milk by the holder method has any significant effect in lowering its total nutritive value for the growing animal.

McCollum [20] pointed out:

> The opponents of pasteurized milk have conspicuously failed to make a case against it in favor of the raw product. The decided lessening of incidence of intestinal troubles and contagious diseases carried by raw milk through pasteurization makes it hard to understand how opposition can longer be justified.

He also stated:

> Since the effect of pasteurization on the food value of milk is too slight to be apparent even in specially designed experiments, and is not apparent in observations on children living under ordinary American conditions, there is no valid argument which can be brought forward in support of the marketing of raw milk for the general population.

It appears obvious that American physicians and health authorities are justified in recommending that all milk be pasteurized.

20. McCollum, E. V.: The Nutritional Aspects of Milk Pasteurization, Am. J. Pub. Health 24:956-958 (Sept.) 1934.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following reports.

AUSTIN SMITH, M.D., *Secretary.*

METHAPYRILENE HYDROCHLORIDE GENERIC DESIGNATION FOR N,N-DIMETHYL-N'-(*ALPHA*-PYRIDYL)-N'-(*ALPHA*-THENYL) ETHYLENEDIAMINE HYDROCHLORIDE AND PROTECTED NAME THENYLENE HYDROCHLORIDE (ABBOTT LABORATORIES):

In the consideration of two brands of N,N-dimethyl-N'-(*alpha*-pyridyl)-N'-(*alpha*-thenyl) ethylenediamine hydrochloride, the Council was obliged to determine a satisfactory generic name. After due consideration, the term methapyrilene hydrochloride was chosen. The Council has voted to accept a brand of this agent marketed by the Abbott Laboratories under the protected name "Thenylene Hydrochloride." The protected name proposed by another firm was found to be objectionable and has not been recognized.

METOPON HYDROCHLORIDE GENERIC DESIGNATION FOR METHYL-DIHYDROMORPHINONE HYDROCHLORIDE

The Council recently published a paper on Metopon (J. A. M. A. May 22, 1948, p. 365), prepared by Dr. Nathan B. Eddy, Secretary of the Committee on Drug Addiction and Narcotics of the National Research Council, without having first formally published its recognition of the generic term. Since this term has been in use for some time by the U. S. Public Health Service for this preparation of methyldihydromorphinone hydrochloride and since there appears to be no objection to its use, the Council adopted the foregoing statement of recognition and authorized its publication.

NEW AND NONOFFICIAL REMEDIES

The following articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

LIQUID PETROLATUM-U.S.P. (See New and Nonofficial Remedies 1947, p. 320).

The following dosage forms have been accepted:

THE E. L. PATCH COMPANY, BOSTON

Emulsion Kondremul (*Plain*): 500 cc. bottles. An emulsion of mineral oil and Irish Moss (Chondrus Crispus).

Emulsion Kondremul with Cascara: 400 cc. bottles. An emulsion of mineral oil with nonbitter extract of cascara and Irish Moss (Chondrus Crispus).

Emulsion Kondremul with Phenolphthalein: 500 cc. bottles. An emulsion of mineral oil with phenolphthalein and Irish Moss (Chondrus Crispus).

NICOTINAMIDE-U.S.P. (See New and Nonofficial Remedies 1947, p. 514).

The following dosage forms have been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Solution Nicotinic Acid Amide: 100 mg. per cc., 10 cc. vials. Preserved with chlorobutanol 5 mg.

Tablets Nicotinic Acid Amide: 100 mg.

RIBOFLAVIN-U.S.P. (See New and Nonofficial Remedies 1947, p. 511).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Tablets Riboflavin: 5 mg.

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SATURDAY, SEPTEMBER 11, 1948

CANCER DIAGNOSTIC FACILITIES AND DETECTION CENTERS

The attack on cancer is now enlisting general cooperation. The medical attack includes (1) prevention, (2) early detection and (3) adequate treatment. Prevention is possible only to the extent that etiology is recognized. Early detection is imperative and suggests (*a*) periodic examination of apparently well persons, especially those over 40, for accessible silent tumors, and (*b*) medical examination of persons with symptoms of "one of the seven danger signals" of cancer. Since there can never be enough "cancer detection clinics" to handle 142,000,000 persons, the detection program should and must be expanded through the offices of practicing physicians.

Every practicing physician should emphasize the need for and the importance of annual physical examination of persons past 40. Approximately 45 per cent of cancer in women involves tissues or organs readily accessible to relatively simple examination. In men, the corresponding figure is unfortunately only 14 per cent. Nevertheless, such examinations in physicians' offices would provide the country with over 100,000 detection centers.

Theoretically detection centers could be set up in hospital outpatient departments or in clinic buildings and provide detailed examination. If applied to persons without symptoms (as was the intention), only approximately one cancer was detected in each thousand persons so examined. Applied to persons with symptoms, or to an exclusively elderly female clientele, the percentage yield was much higher. Since it cost approximately $25 per case to do the complete physical examination, blood count, roentgenogram of the chest, blood Wassermann test and cervical smear once recommended, each case of cancer discovered cost about $25,000.

The creation of additional diagnostic facilities is frequently urged. For over twenty-five years prior to 1941 the Veterans Administration had unlimited diagnostic facilities in its hospitals; yet the diagnostic work performed at most veterans' hospitals during that period was not accepted as reliable by most physicians. In other words, "facilities" without interested, alert physicians mean little or nothing.

Diagnostic examinations are of two general types: (*a*) the relatively brief examination of apparently well persons, over 40, in the search for accessible tumors (especially skin, lips, breast, cervix and rectum), and (*b*) the more detailed physical examination of persons with symptoms, to be augmented often by roentgen or clinical laboratory studies. Attempts to provide impersonal mass examination "diagnostic clinics" will add greatly to the cost of medical care, even if those costs are temporarily hidden. The actual value of such procedures is still in doubt.

The cancer program will be significantly advanced by encouraging the concept of full use of existing medical man power on a wide, voluntary basis. The slogan should be "Every Physician's Office a Detection Center."

ANTIVIVISECTIONISTS EXPOSED

The antivivisectionists love publicity pointed to their angle, but screams of anguish and tearing of hair will soon be reflected in the antivivisectionist publications after the recent article in the *Saturday Evening Post*, "They're Trifling with Your Life."[1]

This article designates the antivivisectionists as "an obscure cult of sincere but misguided Americans—spurred by shrewd promoters—[which] now threatens to wipe out the techniques of medical research that have saved millions from horrible deaths."

There in the subtitle of the article is the core of the antivivisectionist issue as the medical profession has stated it again and again.

The vast majority of antivivisectionists are apparently sincere but misguided. They are kindly people who love animals perhaps too well. Their noble sentiments make them easy prey to the shrewd promoter who makes his living by claiming that animals in laboratories suffer needless pain, and that money is needed to stop animal experimentation. The people who support the antivivisectionist movement have never been in laboratories and have only the vaguest concept of what constitutes scientific research.

The combination of "sentimental money," as the gifts to antivivisectionism have been termed, plus shrewd promotion, embodies a real threat to medical research. The menace cannot be ignored as something remote rather than immediate. Year after year the antivivisectionists have had bills introduced into the Congress of the United States and into state legislatures "exempting" the dog from service in the medical research laboratory. Such bills, one of which came perilously near enactment in a New York legislature, serve as publicity springboards even when they fail of enactment. If the so-called dog bill should ever go through the Congress in a preadjournment legislative jam the event would

1. Moon, V. H., and Wittels, D. G.: They're Trifling with Your Life, Saturday Evening Post **221**:16 (July 24) 1948.

be a catastrophe. Although these bills in the Congress apply only to the District of Columbia, they would serve, if passed, as patterns to be copied in state legislatures. In addition to attempting to effect state and national legislation, the antivivisectionists, by creating uproar and emotional tension, have succeeded in diverting many stray dogs which used to be delivered to medical schools to the gas chamber at the dog pound, thus increasing the difficulties experienced by medical schools in procuring dogs for study. Finally, the antivivisectionists admit that the dog is used as their symbol because of mankind's universal love for dogs. If they once succeed in excluding dogs from use for medical research they will proceed to broaden this ban to include, first, cats, and gradually other animals.

The *Saturday Evening Post* has done an important and significant service to the health of the American people in exposing the threat of antivivisectionism. This is a courageous act, for the *Post* will inevitably be deluged with letters from the antivivisectionists. People who realize the importance of animal experimentation for medical progress should write to the *Saturday Evening Post* and commend the editors for their courage in submitting themselves to the annoyance and the threats sure to come from the antivivisectionists.

RADIOACTIVE ANTIBODIES

Numerous investigators have shown that it is possible to couple chemical agents with an antibody without destroying its specific activity. Marrack [1] found that typhoid bacilli are specifically agglutinated by a typhoid antiserum prepared by coupling a red dye with the specific agglutinin. The bacilli thus agglutinated were colored red. Coons [2] and associates of Harvard University prepared a tagged type 3 antipneumococcus serum by coupling it with a fluorescing substance. The coupled serum showed a blue fluorescence when irradiated with ultraviolet light. Clumps of type 3 pneumococci specifically agglutinated by this tagged serum also showed a blue fluorescence. They afterward [3] prepared a tagged antiserum which fluoresced green. With this they were able to locate regions of high concentration of type 3 pneumococci in tissues of infected mice. On ultraviolet irradiation the fixed tissues in these areas fluoresced green. McClintock and Friedman [4] combined uranium or malachite green with antipneumococcus serum. After injecting this tagged serum into guinea pigs, they found uranium or malachite green localized specifically in tissues which had been previously infiltrated with pneumococcus polysaccharide.

In order to find tagged antibodies better suited for in vivo study, Pressman and Keighley [5] of the California Institute of Technology coupled organ-specific antibodies with radioactive iodine (I^{131}). In their initial work they selected an antikidney serum. To prepare this serum kidneys of rats were perfused free from contained blood. At four day intervals 1 to 2 cc. of a 10 per cent emulsion of these blood-free rat kidneys was injected intra-abdominally into rabbits. By the end of eight weeks the serum of rabbits given this injection often precipitated rat kidney extract in a dilution as high as 1:2,048.

Iodination of this serum was carried out by the addition of a solution of I^{131}. After standing at room temperature until disappearance of the iodine color, the serum was dialyzed against 1 per cent sodium chloride until free from uncombined iodine as indicated by negative reactions to radioactive tests of the dialysate. The globulin fraction of this radioactive antiserum was then separated. Calculations suggested that about four radioactive iodine atoms were combined with each antibody globulin molecule.

Rats were given injections of 13 mg. (1 cc.) of this iodinated globulin in the tail vein. Control tests were made with iodinated antiovalbumin or iodinated normal serum globulin. After two days the rats were anesthetized and the whole body perfused free from circulating blood. The resulting blood-free tissues were analyzed for radioactivity. Geiger-Müller counts showed that in control rats given injections of iodinated antiovalbumin or iodinated normal globulin almost no radioactivity was acquired by the fixed tissues. In all cases negative counts were recorded with the kidneys, brain, heart or spleen, and very low or negative counts with the liver and lungs.

In contrast with iodinated specific antikidney globulin, an extremely high concentration of radioactivity was recorded for the kidneys. Extremely low or negative counts were recorded for all other organs except the liver, lungs and spleen. In these organs less than 25 per cent of the renal concentration was noted. Pressman would account for this extrarenal deposit of the specific globulin on the assumption that the antikidney serum contained minor antibodies against the endothelial tissue common to all organs.

Proof that radioactive iodine is thus electively deposited in the tissues when combined with homologous antibodies opens up a wide field of speculative therapeutic interest. For example, Imagawa [6] and his associates of the University of Minnesota prepared a highly specific precipitin against one fraction of mouse mammary carcinoma. Whether or not conjugation of this serum with I^{131} would lead to the elective localization of radioactive iodine in mouse carcinoma has not yet been determined. If so, its local therapeutic effect would be of suggestive clinical interest.

1. Marrack, J.: Nature **133**: 292, 1934.
2. Coons, A. H.; Creech, H. J., and Jones, R. N.: Proc. Soc. Exper. Biol. & Med. **47**: 200, 1941.
3. Coons, A. H.; Creech, H. J.; Jones, R. N., and Berlinger, E.: J. Immunol. **45**: 159, 1942.
4. McClintock, L. A., and Friedman, N. M.: Am. J. Roentgenol. **54**: 704, 1945.
5. Pressman, D., and Keighley, G.: J. Immunol. **59**: 141 (June) 1948.
6. Imagawa, D. T.; Green, R. G., and Halvorson, H. O.: Proc. Soc. Exper. Biol. & Med. **68**: 162 (May) 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Sept. 8, 1948.

Party to Attend Hospital Dedication

Led by heads of the Army, Navy and Air Force medical departments, a Washington group bound for dedication ceremonies at Tripler General Hospital, Honolulu, is scheduled to depart from the Capital by plane on Labor Day. Members of the party will attend sessions of the Pan Pacific Surgical Association on September 9, as well as the Tripler dedicatory program on the following day. They will be joined in Honolulu by Dr. Ernst E. Irons, President-Elect, and probably other representatives of the American Medical Association. The group will be composed of the following: Maj. Gen. Raymond W. Bliss and Rear Adm. Clifford A. Swanson, Surgeons General of Army and Navy, respectively; Maj. Gen. Malcolm C. Grow, Air Surgeon; Dr. W. P. Dearing, Deputy Surgeon General of the U. S. Public Health Service; Rear Adm. Joel T. Boone, executive secretary, Committee on Medical and Hospital Services of the Armed Forces; Brig. Gen. George E. Armstrong, Army Deputy Surgeon General; Maj. Gen. Norman T. Kirk, former Army Surgeon General; Col. Mary G. Phillips, chief of Army Nurse Corps; Rear Adm. Paul M. Albright, assistant chief, Bureau of Medicine and Surgery; Col. A. L. Tynes, chief of Army hospital construction; Maj. Gen. John M. Willis, commandant of Brooke Army Medical Center; Col. William Powell, member of the Hawley Board's executive committee; Dr. Wilburt C. Davison, dean of Duke University School of Medicine; Dr. Herman G. Weiskotten, dean, Syracuse University College of Medicine; Dr. Carleton Mathewson, San Francisco Hospital; Gerald G. Gross, editor of Washington Report on the Medical Sciences and public relations consultant to Gen. Bliss; Col. Elbert DeCoursey, of Brooke Army Medical Center; Brig. Gen. Leonard Heaton, chief of surgery at Letterman General Hospital.

General Heaton, Col. DeCoursey and Dr. Mathewson will join the party in San Francisco. From Honolulu certain military members of the contingent will continue to Guam to study possibilities of consolidating Army and Navy hospital facilities on the island. Included in this group will be General Bliss, Admirals Swanson, Boone and Albright, and Col. Powell.

Dr. Draper Joins Retirement Fund Staff

Although neither American Red Cross nor United Mine Workers had issued any announcement of the transfer as of August 28, Dr. Warren F. Draper is retiring from his Red Cross post and will join the United Mine Workers Welfare and Retirement Fund staff early in September. He will serve as executive officer of the fund's medical branch, in association with Dr. R. R. Sayers, chief. For the past two years Dr. Draper has been with Red Cross as deputy to Dr. G. Foard McGinnes, vice president for medical services. During the first half of that tenure, he was on loan from U. S. Public Health Service, of which he formerly had been Deputy Surgeon General. On his statutory retirement, for age, from the U. S. Public Health Service in 1947, he remained in Red Cross service. During a great part of World War II, Dr. Draper was on assignment to Army forces overseas with the rank of major general.

Report of Poliomyelitis Cases

Encouraged by a decline in the number of reported cases of poliomyelitis, the U. S. Public Health Service authorities are hopeful—but still far from certain—that the peak for 1948 has been reached. During the week ended August 21, a total of 1,307 new cases was reported to Washington. This compared with 1,409 for the previous week and marked the first weekly decline since May 22. Also, it was the fourth consecutive week with a case figure below that for the corresponding seven day period in 1946, which was the nation's most serious poliomyelitis year since 1916. Another heartening development was the reduction in case reports from Texas, North Carolina and California, the states that have been hardest hit this year. For the week ended August 21, only three states reported increases of 10 or more cases over the preceding week. They were New York, whose 99 new cases compared with 59 the previous week; Minnesota, up from 57 to 67, and Wisconsin, from 26 to 36. Rhode Island retained its distinction of being the only state in the Union where not 1 case of poliomyelitis had been diagnosed and reported this year up to August 21. The grand total for 1948 up to that date was 9,743 cases, compared with 3,221 for the same period in 1947 and 8,841 in 1946. The five year median is 4,308.

R.O.T.C. Units

In preparation for the coming academic year, the newly assigned Medical, Dental, Veterinary and Medical Service Corps officers who will command Army R.O.T.C. units in professional schools this fall assembled at the Pentagon August 25-27 for an orientation conference. They were addressed and "briefed" by division chiefs in the Surgeon General's Office on Selective Service regulations, administrative duties and miscellaneous responsibilities.

Scheduled to have R.O.T.C. units in 1948-1949 are 51 medical schools, 18 dental schools, 6 colleges of veterinary medicine and 4 pharmacy schools. Eight of the medical schools will be joining the program, now entering its third year, for the first time. They are Boston, Columbia, Harvard, Kansas, South Carolina, Tulane, Washington (Seattle) and Emory.

The Army has never had R.O.T.C. instruction in pharmacy schools before, and this will mark the end of a fifteen year hiatus in dental and veterinary schools, where it was discontinued in 1933.

Critical Pharmaceuticals

Two pharmaceutical items are included among the twenty-eight critical materials which are on the Munitions Board's stockpiling list for the purchase period ending October 1, it has been announced by the National Military Establishment. The purchase program calls for delivery before June 30, 1949.

"While the Munitions Board plans the stockpiling program," said the announcement, "companies having strategic and critical materials which can be spared for the national stockpiles should deal directly with the Bureau of Federal Supply, Department of the Treasury, which makes the actual purchases."

The pharmaceutical items and the quantity scheduled to be contracted for by October 1 are as follows: quinidine, 6,000 ounces; castor oil, 15,000,000 pounds.

Committee Solicits Complaints of Government Doctors

A spokesman for the Hoover Commission's medical services committee, which is studying federal medical care activities, reports excellent response to the questionnaire which was mailed in mid-August to physicians, dentists and nurses on government payrolls, or who formerly were in federal service. The purpose of the poll was to obtain candid comment on the way that their skills were or are being utilized in the Army, Navy, Veterans Administration and U. S. Public Health Service and to stimulate constructive criticism.

The replies will help the committee, whose head is Tracy S. Voorhees, Assistant Secretary of the Army, in the formulation of its forthcoming report, which will recommend certain administrative reforms in federal medical and hospital functions. A sampling of several thousand physicians, dentists and nurses will be covered in the questionnaire survey, which is under the immediate supervision of Dr. Edward D. Churchill, chairman of the medical man power subcommittee.

Labor Department Reports on Insurance Plans

A report by the Department of Labor discloses that upward of 3,000,000 American workers are covered by health-pension insurance contracts with their employers. This is a fivefold increase over the 1945 figure, according to the Bureau of Labor Statistics survey on which the report is based.

GOVERNMENT SERVICES

ARMY

MEDICAL MEETING IN KOREA

The monthly meeting of Army Medical Department officers stationed in Korea on July 21 was sponsored by the Department of Public Health and Welfare, USAMGIK. The sixty officers and twenty-five civilian physicians and nurses who attended visited the Sun Wha City Contagious Disease Hospital in Seoul, where Dr. Y. S. Yun presented cases illustrating the various stages of syphilis and Dr. C. M. Myun, discussed the treatment of tuberculosis as carried out at the hospital. In the contagious disease section, several cases of smallpox and diphtheria were observed. In the afternoon, Dr. P. S. Han discussed the vital statistics available in South Korea. Lieut. William I. Rolph, M.C., Advisor to the Department of Public Health and Welfare, discussed the recent movement of refugees from Manchuria to South Korea, outlining the measures taken for the prevention of diseases among them. Captain M. H. Heeren, Nursing Advisor, outlined the means taken to bring the nursing standards and social position of Korean nurses up to a level comparable to those of the United States. Dr. H. C. Mason, supervisor, conducted a tour of the National Biological Laboratories, which are industriously engaged in raising public health and therapeutic standards in South Korea. A visit was made also to the Receiving Home for Orphans, where the methods of care and disposition of the children were outlined by Mr. M. W. Scherbacher.

SPECIALIST RATING IN PREVENTIVE MEDICINE

Medical officers who want to be certified as specialists in preventive medicine may now submit applications to the Interim Board of Preventive Medicine which will administer the examinations and certification. This board was formed by joint action of the Surgeons General of the Army, Navy and Public Health. The qualifications, among other things, include graduation from a medical school and internship in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or by the Army or Navy, the degree of Master of Public Health or its equivalent, membership in the American Medical Association and experience in a responsible position in the field of public health or preventive medicine. The examinations will be held during the fall of this year or the spring of 1949.

POSTGRADUATE COURSES

Fifty-eight additional Army Medical Department officers will shortly begin courses in various subjects in civilian schools and hospitals. In this number are five lieutenant colonels, one major, three captains, forty-eight first lieutenants, and one second lieutenant, representing various corps of the Medical Department.

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NAVY

RESEARCH AT GREAT LAKES ON RESPIRATORY DISEASES

A Navy medical research unit designed to develop methods of respiratory disease control is being established at the Naval Training Center, Great Lakes, Ill. The unit will conduct laboratory tests of measures designed to control the spread of the common cold, tonsillitis, scarlet fever, influenza and pneumonia. Clinical records of all cases of such diseases at the Naval Training Center will be correlated with data on climate, living conditions, physical fitness and diet. The Naval Training Center at Great Lakes, having about 25,000 officers and enlisted men, was chosen as an ideal location for the study of epidemology. While medical treatment and isolation have reduced fatalities from respiratory ailments to a minimum, these diseases remain the greatest annual cause of man-work days lost by illness.

The research unit is being installed in permanent quarters and when completed will offer complete facilities necessary for the studies. The main laboratory is designed to provide office space and laboratories where the bacteriologic, virologic, serologic and chemical studies can be carried out. Observations on the personnel of the naval center will be carried out in the medical dispensaries throughout the station with the cooperation of the medical department of the Training Center. Conversion of laboratory buildings will be completed about Jan. 1, 1949.

The research staff will consist of four Navy medical officers, seven civilian scientists, sixteen naval enlisted technicians and eight civilian technicians. Consultants will be associated with the unit and by periodic visits will advise in the direction of the studies. Lieutenant Commander John R. Seal of the Navy Medical Corps is officer in charge of the unit. Other Navy medical research units are stationed in California and Egypt. Unit 1, composed mostly of civilian scientists, is located at the University of California. Directed by Captain Albert Krueger, MC, U. S. N. R., a reserve medical officer now on inactive duty, this unit is engaged in studying bacteriology, particularly virus growth. Unit 3, under Commander R. A. Phillips, is stationed in Cairo, Egypt. This unit is conducting research on parasitic diseases and other ailments native to Northern Africa.

ACCEPTED FOR POSTGRADUATE INSTRUCTION

The following medical officers have been accepted for postgraduate instruction at the institutions indicated: Commander John J. Eberhart, Nashville, Tenn., residency in psychiatry at the University of Louisville School of Medicine in Kentucky; Commander Vinton Hall, South Pasadena, Calif., course in dermatology and syphilology at the University of Southern California in Los Angeles; Commander Russell F. Sanders, Williams Bay, Wis., course in pathology at the National Naval Medical Center, Bethesda, Md.; Commander Roger D. Sherman, Briarcliff Manor, N. Y., residency in psychiatry at the Naval Hospital in Philadelphia; Lieut Richard B. Leander, St. Paul, course in psychiatry at the Pennsylvania Hospital in Philadelphia, and Lieutenant (jg) Peter W. Schneider, Laurel, Miss., residency in pediatrics at the Naval Hospital in Long Beach, Calif.

NEW REGULAR OFFICERS

The following naval medical officers have been accepted for transfer from the Naval Reserve to the Regular Navy: Lieut. (jg) David M. Butler, Provo, Utah; Lieut. (jg) John G. Esswein, New York; Lieut. (jg) John S. Neill, Valley Station, Ky., and Lieut. (jg) John M. Packard, Saranac Lake, N. Y.

PERSONALS

Capts. Everett M. George and Robert B. Team and Lieut. Comdr. Julian M. Jordan, Medical Corps, now on the retired list, have volunteered to return to active duty and have been assigned.

Lieut. (jg) Jules H. Bogaev of the Naval Reserve has been ordered to active duty at Great Lakes, Ill.

Lieut. (jg) Harold A. Davis of San Diego, Calif., has gone on active duty at the Naval Hospital, San Diego, Calif., from an inactive Reserve status.

Capt. Francis D. Walker, M.C., Retired, of Brunswick, Maine, has returned to active duty at his own request and has been assigned to the Receiving Station, San Diego, Calif.

VETERANS ADMINISTRATION

RESIDENCIES IN PSYCHIATRY AVAILABLE

Residencies in psychiatry are available at the Veterans Administration Hospital, Gulfport, Miss. Training will be given at the hospital and in New Orleans under the supervision of Tulane University and Louisiana State University Schools of Medicine. The program will include didactic and clinical instruction in all phases of psychiatry and basic neurology, with experience in the technics of treating neuropsychiatric adults and children. Applications should be addressed to Dr. H. W. Kostmayer, Chairman of the Combined Deans' Committee, Tulane University School of Medicine, New Orleans.

CONTRACTS FOR HOSPITALS

The contract for the construction by the Veterans Administration of a two hundred bed hospital at Grand Island, Neb., has been awarded on a low competitive bid of $5,244,854.

The contract for the construction of a two hundred and fifty bed Veterans Administration hospital at Big Springs, Texas, has been awarded to the low bidder for $5,712,739.

Contracts have been let for the general construction of the two hundred bed Veterans Administration general hospital at Fort Wayne, Ind., to the low bidder for $4,682,500.

Contracts for the main construction work on the 1,000 bed hospital at Buffalo, N. Y., have been awarded, the successful bid being $9,287,000 for the main building; the heating and ventilating contract was for $1,334,497 in addition, and the plumbing contract $1,297,344.

The contract for the mechanical construction of the four hundred and fifty bed general hospital at Shreveport, La., has been awarded to the lowest bidder for $2,242,450.

MEETING OF ADVISORY BOARD

The next quarterly meeting of the Veterans Administration national advisory board, which is under the chairmanship of Dr. Charles W. Mayo, Rochester, Minn., will be in Washington, D. C., September 13. A recent appointment is that of Dr. Robert A. Kimbrough Jr., of Philadelphia, succeeding Dr. Paul Titus of Pittsburgh, who resigned.

PERSONALS

Dr. Horace B. Cupp, for a long time on the staff of the Johnson City, Tenn. veterans' hospital, has been named assistant medical director for the Southeastern Branch of the Veterans Administration, which supervises fifteen hospitals and six regional offices in the five Southeastern states. Dr. Cupp served in the Army in the recent war in command of the 63d Station Hospital in Australia and later as commanding officer of a hospital ship.

Dr. David E. Quinn, formerly manager of the veterans' hospital at Oteen, N. C., has assumed his new duties as medical director of the Northwest Branch of the Veterans Administration with headquarters at Seattle.

Dr. J. G. Bohorfoush has resigned as medical director of the Jefferson Tuberculosis Sanatorium, Birmingham, Ala., to accept a position with the Veterans Administration in Atlanta, Ga.

Dr. George S. Peters has resigned as chief of the Surgical Service at the veterans' hospital, Montgomery, Ala., and will enter private practice in that city.

Dr. Robert A. Houston, Sunbury, Pa., has been appointed chief of medical services of the veterans' hospital at Lebanon, Pa.

PUBLIC HEALTH SERVICE

COURSES IN LABORATORY DIAGNOSIS

The Public Health Service announces a second four weeks' course in the laboratory diagnosis of tuberculosis to be given November 15-December 10 at the Communicable Disease Center, in Atlanta. This course is open to all grades of employed laboratory personnel, although first consideration will be given to those from local and state public health service departments. A third six weeks' course on laboratory diagnosis of parasitic diseases will be given at the above address October 11-November 19. There are no tuition fees but travel and living expenses must be paid by the individual. Applications for the courses should be made as far in advance as possible to the Chief, Laboratory Division, Communicable Disease Center, 291 Peachtree Street, Atlanta, Georgia.

APPOINT DIRECTOR OF NATIONAL HEART INSTITUTE

Surgeon General Leonard A. Scheele announces the appointment of Dr. Cassius J. Van Slyke as Director of the National Heart Institute, under the general supervision of Assistant Surgeon General R. E. Dyer, Director of the National Institutes of Health. Dr. Van Slyke will be responsible to the Surgeon General for coordination of all heart disease activities in the Public Health Service. He will represent the Service in maintaining relations with professional societies, volunteer agencies and other civil groups interested in the heart disease program.

The National Heart Institute was created by an Act of Congress, which was approved by the President June 15, 1948. The law authorizes the Public Health Service to develop a program and promote the attack on cardiovascular diseases. The program will include research, financial aid to research institutions and training of professional personnel, fellowships for individual scientists and grants-in-aid and technical assistance to the states for the development of heart disease control services.

The National Heart Act also directs the appointment of a National Advisory Council to be composed of outstanding scientists and clinicians in cardiovascular diseases and representatives of the public. The new Institute will have its headquarters at the National Institutes of Health, Bethesda, Md.

Dr. Van Slyke was graduated from the University of Minnesota Medical School and in 1932 was commissioned in the Regular Corps of the Service. One of his first assignments was investigation of encephalitis in St. Louis; from 1936 to 1944, he pursued a distinguished career of research at the Venereal Disease Laboratory of the Public Health Service at Stapleton, N. Y. In 1945, he was placed in charge of the Research Grants program of the National Institutes of Health. Dr. David E. Price, who succeeds Dr. Van Slyke as Chief of the Division of Research Grants and Fellowships, took his medical degree at the School of Medicine, University of California, and was commissioned in the Regular Corps of the Public Health Service. In 1947 he was made Chief, Cancer Grants Branch of the National Cancer Institute.

ADVISORY MENTAL HEALTH COUNCIL

The appointment of Dr. Leo H. Bartemeier, associate professor of psychiatry, Wayne University College of Medicine, Detroit, and Dr. Carlyle Jacobsen, Ph.D., dean of the graduate school, State University of Iowa, Iowa City, to the National Advisory Mental Health Council has been announced. They will succeed Dr. David M. Levy, New York, and Dr. Edward A. Strecker, Philadelphia, whose terms on the council expired on June 30. Dr. David Levy has been appointed to serve on the Research Study Section, an advisory body of the council; Dr. Grover F. Powers, professor of pediatrics, Yale University School of Medicine, New Haven, Conn., also has been appointed to the Research Study Section, replacing Dr. Charles A. Janeway, professor of pediatrics, Harvard Medical School, Boston, on the latter's resignation. The National Advisory Mental Health Council, comprising six leading scientific authorities, makes recommendations to the Surgeon General on matters relating to the activities of the U. S. Public Health Service in the field of mental health.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Goggans, Albert M. ..... Hissop
Lawrence, William E. ..... Mobile
Leavell, Ullin W. Jr. ..... Birmingham
Lumpkin, Hoyt G. ..... Boaz
Miller, Joseph B. ..... Mobile
Ray, Charles J. ..... Greenville
Simpson, Sam T. ..... Stevenson
Stanley, James F. ..... Enterprise

Arkansas

Baker, Clark M. ..... Maynard
Keeling, Jack H. ..... Jasper
Lambiotte, Louis O. ..... Ft. Smith
Wells, Travis L. ..... Monticello

California

Allan, John S. ..... Los Angeles
Erskine, John M. ..... San Francisco
Kim, Chang S. C. ..... Los Angeles
Krebs, David E. ..... Palisades
Kritzer, Morton D. ..... Los Angeles
McKeehan, Harold L. ..... Huntington Park
Oyster, Joseph M. ..... Coalinga
Pingree, Louis J. ..... Los Altos
Purdy, Ralph S. Jr. ..... San Francisco
Steadman, Monte G. ..... Los Angeles
Wagner, Clifford M. ..... Los Angeles

Colorado

Edwards, John A. ..... Denver
Eeckhout, Gifford V. ..... Denver
Flanagan, Earl B. Jr. ..... Denver
Kicenski, Herman E. ..... Denver
Lowell, Edward J. Jr. ..... Denver
Redwine, Robert H. ..... Pueblo
Rumley, Aaron S. ..... Fort Collins
Shields, Lorn M. ..... Denver
Tillotson, Frederick W. ..... Denver
Weiss, Joseph H. ..... Denver

Connecticut

Fitzgerald, Gerald P. ..... Winsted
Ganey, Joseph M. Jr. ..... Waterford
Lovallo, Frank ..... Torrington
Lydon, Lawrence G. M. ..... New Haven
Piel, John J. ..... Salisbury
Sears, Bernard R. ..... Norwich
Swan, Bernard R. ..... Bridgeport

District of Columbia

Fitzgerald, Bernard A. ..... Washington
Greenbaum, Seymour ..... Washington
Healy, Michel M. ..... Washington
Jaeger, Henry W. ..... Washington
McGovern, John P. ..... Washington
Pate, Charles V. ..... Washington
Walsh, James C. Jr. ..... Washington
Weaver, Ralph M. Jr. ..... Washington

Florida

Engle, Ralph L. Jr. ..... Coral Gables
Fletcher, Thomas B. Jr. ..... Greensboro
Horrell, Jonathan B. ..... Ocala
Lindner, John D. ..... Ocala
Newman, Jerome H. ..... Jacksonville
Prather, George W. ..... St. Petersburg
Thomas, Merrick D. Jr. ..... Miami

Georgia

Bedingfield, James A. ..... Caldwell
Brawner, Darnell L. ..... LaGrange
Camp, Benjamin L. ..... Ellisay
Inman, John S. Jr. ..... Albany
King, Harry C. ..... Tennille
Polk, Rothwell C. ..... Hapeville
Wall, Hilton F. ..... Atlanta

Illinois

Asche, Charles W. ..... Chicago
Branthaven, Charles A. ..... Chicago
Delong, Robert E. ..... Chicago
Evans, Frank F. ..... Chicago

Illinois—Continued

Fischer, Arthur R. ..... Berwyn
Fox, LeRoy J. ..... Maywood
Garrard, Sterling D. ..... La Salle
Giebelhausen, Gustav W. ..... Peoria
Gill, James P. ..... Joliet
Graham, Henry I. ..... Chicago
Herbert, Wayne I. ..... Chicago
Howland, Bernard F. ..... Sycamore
Jones, Robert C. ..... Henry
Litwiller, Raymond W. ..... Chicago
Kamenear, Harold R. ..... Chicago
King, Richard E. ..... Chicago
Kopsa, Walter J. ..... Cicero
McNeil, Gordon C. ..... Chicago
Middleton, William H. ..... Alton
Rovelstad, Randolph A. ..... Elgin
Sanneman, Everett H. ..... E. St. Louis
Stemerman, Irving ..... Chicago
Streuter, Milton A. ..... Arenzville
Trobaugh, Frank E. Jr. ..... West Frankford
Weigen, John F. ..... Chicago
Zimmerman, Norval F. ..... Forest Park
Ziomek, Matthew J. ..... Chicago

Indiana

Alford, James A. ..... Garrett
Carter, Fred S. ..... Hammond
Ewing, Nathaniel D. ..... Vincennes
Hamilton, Charles O. ..... Selma
Miller, Wallace E. ..... Crawfordsville
Myers, Paul W. ..... Indianapolis
O'Shaughnessy, Robert P. ..... Lawrenceburg
Schmidt, Eugene E. ..... Huntington
Tasher, Dean C. ..... South Bend
Wagoner, James M. ..... Huntingburg
Zalac, Donald A. ..... Annapolis
Zavela, Dan ..... Indianapolis

Iowa

George, Louis A. ..... Cherokee
Hyde, Robert W. ..... Elkader
Petersen, Robert E. ..... Davenport
Sears, Lewis N. ..... Davenport
Smith, Lloyd A. W. ..... Iowa
Taylor, James H. ..... Sheldon

Kentucky

Berning, Donald N. ..... S. Ft. Mitchell
Hess, Paul P. ..... Louisville
Holtzman, Alam M. ..... Louisville
Pierce, Gene S. ..... Louisville
Ramey, John R. ..... Sterling
Redd, Harold Jr. ..... Lexington
Richardson, George L. ..... Beech Creek

Louisiana

Faust, Jacob Jr. ..... New Orleans
Katz, Jerome B. ..... New Orleans
Rowlett, George S. Jr. ..... Shreveport
Sammons, Karl T. ..... New Orleans
Thomas, Albert M. ..... Monroe

Maryland

Goldberg, Raymond B. ..... Baltimore
Grumbine, Francis L. ..... Unionville
Kiefer, Robert A. ..... Catonsville
Milstead, Valgene M. ..... Indian Head
Queen, Joseph E. ..... Baltimore
Scherlis, Leonard ..... Baltimore
Sloan, Herbert E. ..... Baltimore
Steinbach, Stanley R. ..... Baltimore
Traband, Millard T. Jr. ..... Baltimore

Massachusetts

Blahd, William H. ..... Brookline
Chamberlin, Harrie R. ..... Belmont
Desforges, Gerard ..... Springfield
Evans, Sheridan S. ..... Cambridge
Ferris, Benjamin G. Jr. ..... Newton Center
Gilchriest, Bernard N. ..... Springfield
Guerrieri, George A. ..... Stockbridge
Hinchey, Thomas R. ..... Waltham

Massachusetts—Continued

Keigan, Archie G. ..... East Braintree
Killelea, Joseph H. ..... Worcester
Nash, Harold E. Jr. ..... Brookline
Portnoy, Nelson L. ..... New Bedford
Sullivan, Albert W. ..... Hadley Falls
Tobin, Lester H. ..... Lynn
Weinshel, Max ..... Salem
Wheelock, Frank C. Jr. ..... Chestnut Hill
Wilson, Merton F. ..... South Hadley Falls

Michigan

Cintron-Rivera, Angel A. ..... Ann Arbor
Fairbanks, Eugene F. ..... Ann Arbor
Heldt, Richard F. ..... Detroit
Jaynes, Richard V. ..... Detroit
Kaufman, Jacob M. ..... Detroit
Kielhorn, Walter P. ..... Williamston
Little, Robert C. ..... Grosse Pointe
Sala, Walter R. ..... Norway
Smathers, Ward M. ..... Grand Rapids
Sprecher, Omer D. Jr. ..... Detroit
Stoeckle, Harry G. E. Jr. ..... Sturgis
Tremain, Harold L. ..... Detroit
Wagoner, Darwin E. ..... Detroit
Wilson, Norman R. ..... Jackson

Minnesota

Feigal, William M. ..... Minneapolis
Ferguson, Wilson J. ..... Rochester
Gillman, Louis ..... St. Paul
Jensen, Louis C. Jr. ..... Minneapolis
Johnson, Richard J. ..... St. Paul
Knutson, Julian R. B. ..... St. Cloud
Lindell, Robert E. ..... St. Paul
Litin, Edward M. ..... Minneapolis
Lundsten, Leslie C. ..... Williams
McGeary, George D. ..... Minneapolis
Pallister, Philip D. ..... Rochester
Parent, Leslie M. ..... St. Paul
Peik, Donald J. ..... Browntown
Plasha, Matthew K. ..... Minneapolis
Suboloff, Hyman R. ..... Duluth

Mississippi

Dillard, Erin M. ..... Tupelo
Holland, Charles K. Jr. ..... Sunflower
Simmons, Calvin R. ..... Cleveland
Smith, Marvin D. ..... Clinton

Missouri

Canella, John M. ..... Hannibal
Capps, Samuel C. ..... Columbia
Collier, Frederick C. ..... St. Louis
Ellis, Francis J. ..... Springfield
Franklin, Harold A. ..... Clayton
Holt, Robert E. Jr. ..... St. Louis
Kennedy, Howard U. ..... Kansas City
King, James P. ..... St. Louis
Kowert, Edward H. ..... St. Louis
Johnson, William F. ..... Ozark
Lawrence, Fred E. ..... Clayton
Mayfield, James L. ..... Crystal City
Paul, John C. ..... Clinton
Pickett, John M. ..... Joplin
Roberts, John P. ..... St. Louis
Sandeen, Robert M. ..... St. Joseph
Schulz, Clarence G. ..... Charles
Shaw, William J. Jr. ..... Fayette

Montana

Botch, Edmund S. ..... Wibaux
Wiegenstein, John T. ..... Butte

Nebraska

Dodd, Robert B. ..... Fairbury
Knox, Walter E. III ..... McCook
Nisley, Robert J. ..... North Platte
Phelps, Elbert T. ..... Lincoln
Pirruccello, Frank W. ..... Omaha
Rumbolz, William L. ..... Lincoln
Witham, Ray G. ..... Chappell
Worthman, Herbert W. ..... Louisville

PHYSICIANS SEPARATED FROM SERVICE

New Hampshire

Griffin, Samuel G.....Portsmouth

New Jersey

Bashe, Winslow J. Jr.....East Orange
Holland, Albert H. Jr.....Morristown
Katz, Joel.....Passaic
King, Jack A. C.....Newton
Lewin, Leo.....Dover
Lorentz, Gerald T.....New Jersey
McCormack, Lloyd L.....Linden
Neill, Mather H.....Millburn
Palmer, Solon Jr.....Montclair
Pasquariello, Peter J.....Paterson
Quay, Robert M.....Orange
Recht, John M.....Long Branch
Rose, Francis L.....Haddon Field
Weiss, Mortimer.....Newark
Wild, Eugene L.....Paterson
Yazujian, Haig D.....Trenton

New Mexico

Medler, David C.....Albuquerque
Swayze, Victor W.....Farmington

New York

Beckmann, Albert J.....Lynbrook
Farrell, Joseph M.....New York
Frank, Charles W.....Woodmere
Gallagher, Daniel E.....North Tarrytown
Gilmore, Harry L. Jr.....Syracuse
Green, George G.....Brooklyn
Grieco, Rito V.....New York
Gruen, John G.....Brooklyn
Hansen, Aage V. Jr.....Jackson Hts.
Healey, Patrick F.....Glens Falls
Henriksen, Elinar.....Albans, L. I.
Honig, Lester J.....Bronx
Humphrey, Harvey A.....Lowville
Jaretzki, Alfred III.....New York
Kaften, Sheldon H.....New York
Kastl, William H.....Bronx
Keating, John H. Jr.....New York
Kellogg, Robert O. Jr.....New York
King, David G.....Brooklyn
Kryle, Lawrence S.....New York
Linker, Matthew H.....New York
Lopresti, Joseph M.....Corona
Losee, Ronald E.....Red Hook
Marano, Anthony J.....Buffalo
Mattman, Paul E.....New York
Mayberger, Harold W.....Astoria, L. I.
McIntosh, William N.....Buffalo
Meyer, Franklin.....Buffalo
Nelson, William P. III.....New York
Nims, Robert G.....Bronxville
O'Brien, Donald J.....Syracuse
O'Gorman, Kevin M.....Buffalo
Ott, Roy H. Jr.....White Plains
Pachter, Cyrus H.....New York
Peabody, Homer D. Jr..West Hempstead
Pollinger, Paul L.....New York
Ray, Vincent R.....Corona, Queens
Richards, Robert A.....Baldwin
Rosenbaum, Meyer.....Bronx
Roston, Edward H.....Hewlett
Rubin, Cyrus E.....Brooklyn
Ruckert, Gustave T. III.....Rochester
Sarason, Ernest L.....New York
Shapiro, Daniel M.....Brooklyn
Shelmandine, Robert J.....Schoharie
Troiano, Rocco F.....Yonkers
Ward, Chester D.....East Aurora
Weisshaus, Stanley Z.....New York
Wichman, Adolph R.....Floral Park
Williams, John R.....Buffalo
Wood, Frederick W. Jr.....Garden City
Wyatt, Clarence A. Jr.....Albany

North Carolina

Bruton, Charles W.....Mt. Gilead
Burroughs, Gerald W.....Charlotte
Garrison, Robert L.....Lincolnton
Gross, Frank B. Jr.....Winston-Salem
Jones, Beverly N. Jr.....Winston-Salem
Rendleman, David A. Jr.....Salisbury
Stroup, Matthew A. Jr.....Cherryville

Ohio

Ebert, Paul W.....Wadsworth
Ebert, Ray E.....New Holland
Houser, John F.....Versailles
Kagay, Charles L.....Columbus
Keagy, Charles L.....Canton
Klein, Michael.....Cleveland
Mackey, Francis G.....Columbus
Ott, John F.....Cincinnati
Pfister, Glenn W. Jr.....Cincinnati
Poneman, Harold A.....Toledo
Riepenhoff, John P.....Columbus
Rogers, William B. Jr.....Akron
Scott, Murray W. Jr.....Canton
Seiwert, Vincent J.....Cincinnati
Slinger, William N.....Massillon
Solomon, Earl G.....Cincinnati
Stanley, Earl H.....Albany
Stoneburner, Lawson W.....Wooster
Talbott, Thomas J.....Lima
Westhafer, Henry N.....Urichsville
Winterhoff, Ernest H.....St. Clairsville
Zullinger, James W.....Lima

Oklahoma

Dennis, Robert P.....Oklahoma City
Guild, Carl H. Jr.....Shidler

Oregon

Bercu, Bernard A.....Portland
Childs, Robert T.....Portland
Heinemann, Mitchell W. Jr.....Portland
Rosenberg, Alan J.....Portland
Versteeg, Charles N.....Portland

Pennsylvania

Bauer, Richard D.....Philadelphia
Brecher, Eugene.....Philadelphia
Dickey, Robert L.....Philadelphia
Eister, Donald H.....Sunbury
Epstein, Nathan.....Philadelphia
Gair, Lynn E.....Dunbar
Gay, Francis H.....Coatesville
Gerson, Theodore F.....Philadelphia
Gilberti, Michael V.....Aliquippa
Grancey, Robert J.....Forty-Fort
Hertzog, Frank V.....Bethlehem
Howrie, William C. Jr.....Philadelphia
Jeffrey, Robert B.....Uniontown
Kendrick, Oliver R.....Duquesne
Kenig, Isador J.....Harrisburgh
Kerr, Robert M.....Wilkes-Barre
Lang, Warren R.....Philadelphia
Lawrence, James B.....Shamokin
Levinsky, Walter J.....Meadville
Lippi, Frank A. Jr.....Philadelphia
McAllister, Robert M.....Yeadon
McGavin, Thomas A.....Wyomissing
McStravog, Lawrence J.....Philadelphia
Magee, Richard B.....Altoona
Mattei, Frank A.....Philadelphia
Millington, George H.....Philadelphia
Miller, William H.....Drexel Hill
Moore, Richard D.....West Chester
Moylan, Joseph E.....Scranton
Musgrave, Ross H.....Baden
Olash, Felix A.....Luzerne
O'Neal, Alexander H. Jr.....St. Davids
Packer, Lawrence L. Jr.....Lock Haven
Polevoy, Pomeroy E.....Philadelphia
Rabe, Edward F.....Milton
Reganis, John C.....Girardville
Richards, Robert N.....Glenolden
Rozanski, Stanley J.....Plymouth
Ryan, Eugene J.....Pottsville
Sanner, John C.....Scranton
Santore, Felice J.....Philadelphia
Short, William J.....Port Royal
Shuman, Charles R.....Gettysburg
Silverberg, Jay H.....Pittsburgh
Snively, George G.....Wayneboro
Stout, William J.....Philadelphia
Torney, John G.....Philadelphia
Tyson, Robert G.....Pittsburgh
Tyson, Russell R. Jr.....Pottstown
Unterberger, Herbert.....Edwardsville

South Carolina

Deloach, James F.....Aiken
Dickert, Elbert J. Jr.....Newberry
Gibbons, Julius J. Jr.....Wilson
Huff, Frank R.....Charleston
Montgomery, Benton M. Jr.....Kingstree
Taylor, Lewis H. Jr.....Laurens
Watson, Walter G.....Trenton
Williams, Arthur V. Jr.....Charleston
Wooten, Ernest L.....Camden

South Dakota

Froemming, William E.....Sioux Falls
Petsch, Kenneth R.....Wentworth

Tennessee

Hall, James W.....Trenton
Hammonds, Roy G.....Nashville
Jackson, Harold P.....Sewanee
Jernigan, Thomas P. III.....Paris
Luton, Edgar F.....Memphis
O'Hearne, John J. Jr.....Memphis
Orman, Joseph C.....Memphis
Rayl, John E.....Jackson
Short, Dennis W. Sr.....Nashville

Texas

Fallon, Robert J.....Houston
Frank, Thomas V.....Burlington
Gates, Philip A.....Dallas
Herbert, Joseph W.....Houston
Jones, Reed W.....Denison
Kearney, William W.....El Paso
Robinson, James T. Jr.....Dallas

Utah

Barker, Earl S.....Salt Lake City
Grua, Oscar E. II.....Salt Lake City
Haynes, Howard H. Jr...Salt Lake City

Virginia

Caudill, Carrel M.....Pearisburg
Horsley, Thomas M.....Lovingston
Hurdle, Thomas G.....Roanoke
Lang, Carl M.....Charlottesville
Moorman, Warren L. Jr.....Salem
Poe, William D.....Roanoke
Russell, Edward K.....Abingdon
Salisbury, Robert S.....Richmond
Sease, Cyril I. Jr.....Richmond
Snodgrass, Harold W.....Glade Spring
Wilson, John K.....Richmond

Washington

Gabrielson, Mark L.....Seattle
Garvin, James E.....Seattle
Pitchford, Clyde A. Jr.....Aberdeen
Sloan, William H.....Seattle
Rubty, Robert H.....Mabton
Turnbull, Lawrence F.....Olympia

West Virginia

Hufschmitt, Joseph R.....Wheeling
Margolis, George.....Montgomery
Point, Walter W. III.....Charleston
Robinson, William H.....Morgantown
Tidler, James.....Clarksburg

Wisconsin

Kinkade, Byron R.....St. Croix Falls
O'Connell, James R.....Milwaukee
Rice, Thomas J.....Ontario
Rowe, George G.....Dodgeville
Ruppa, Rex.....Milwaukee
Schmitz, John T.....Sparta
Slotnik, Irvin L.....Milwaukee
Wolf, William A.....Appleton

Hawaii

Tomita, T. T...Odhu Territory of Hawaii

Canal Zone

Judson, Walter E.....Balboa Heights

Central America

Roman-Vega, Desiderio A.....Jinotepe

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Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

International College of Surgeons.—The Alabama section of the International College of Surgeons will meet in Birmingham, September 30, in conjunction with the Jefferson County Medical Society and the Southern Research Institute at the Jefferson-Hillman Auditorium. Guest speakers include:

Herbert Acuff, Knoxville, Tenn., Future of Isotopes in Medicine and Surgery.
F. Bayard Carter, Durham, N. C., Endometriosis.
J. Barrett Brown, St. Louis, Management of Facial Injuries.
Albert A. Berg, New York.
Allen F. Voshell, Baltimore, Orthopedics.
Edgar W. Davis, Washington, D. C., Intrapulmonary Tumors.

At the Wednesday evening session, Dr. William Dameshek, Boston, will discuss leukemia. Members of the Alabama State Medical Society are especially invited to this meeting.

CALIFORNIA

New Psychiatric Clinic.—The Berkeley State Mental Hygiene Clinic, associated with the University of California, which has opened temporary quarters in the Cowell Hospital, is part of the State Department of Mental Hygiene and is financed by funds provided under the National Mental Health Act. The clinic is under the direction of Dr. Portia Bell Hume.

Cancer Research Grants.—Five research projects at the University of California, Berkeley, are to be supported by a $21,364 grant from the American Cancer Society. The research, which will be directed toward learning the cause of cancer, is being carried on by Dr. Herbert M. Evans, director of the Institute of Experimental Biology, David M. Greenberg, Ph.D., professor of biochemistry, Paul L. Kirk, Ph.D., professor of biochemistry, and Harold Tarver, Ph.D., assistant professor of biochemistry.

Dr. Addis Honored.—The May issue of the *Stanford Medical Bulletin* is dedicated to Dr. Thomas Addis, professor of medicine emeritus at Stanford University School of Medicine, and contains thirty-two articles by associates, students and fellow workers in the field of renal disease. Dr. Addis is a former Carnegie Research scholar and fellow, and in 1942 was awarded the Cullen Prize by the Royal College of Physicians in Edinburgh. He had been a member of the faculty at Stanford University School of Medicine since 1911.

ILLINOIS

Civil Service Positions Open.—The Illinois Civil Service Commission announces eighteen examinations for physicians, nurses, dentists and health educators. Appointments to be filled include positions in welfare hospitals and schools throughout the state, and in various divisions and field offices in the department of public health. State residence requirements are waived for most of these examinations. September 25 is the final date for applying. These examinations, carrying eligibility for permanent civil service appointments, will be held October 16 and 23. Official application forms and more detailed information may be obtained from the Illinois Civil Service Commission, Armory Building, Springfield.

Postgraduate Conference in Harrisburg.—The Postgraduate Education Committee of the Illinois State Medical Society will sponsor a postgraduate conference at the Harrisburg Country Club, Harrisburg, September 22, with the Saline County Medical Society acting as host. The conference will open with a luncheon, after which the following speakers will participate:

Oswald P. J. Falk, St. Louis, Management of Cardiovascular Problems.
Ranson R. Buchholz, Evansville, Ind., Congenital Diseases of the Newborn.
Danely P. Slaughter, Chicago, Office Diagnosis of Accessible Cancer.
Samuel J. Taub, Chicago, Diagnosis and Treatment of Asthma.
Noel G. Shaw, Evanston, The Rh Factor in the Newborn.
F. Garm Norbury, Jacksonville, Acute Infections of the Nervous System.

A round table discussion and social hour will conclude the afternoon's program. At the dinner Dr. Richard K. Gilchrist, Chicago, will speak on "Surgery of the Colon from the General Practitioner's Standpoint."

Chicago

Dr. Kordenat Goes to Texas.—Dr. Ralph A. Kordenat, formerly associate professor of surgery with the University of Illinois College of Medicine, Chicago, has been appointed to the medical staff, Dallas, Texas, branch office of the Veterans Administration, and will assist in the supervision of the Veterans Administration surgical service in Texas, Louisiana and Mississippi hospitals with permanent headquarters in Dallas. Dr. Kordenat was graduated from the University of Illinois College of Medicine in 1922 and did postgraduate work in London and Berlin. He is one of the founders of the American Board of Surgery. He served during World War I in the U. S. Army and during World War II was vice chairman of the Procurement and Assignment Service for Physicians in Illinois.

Public Lectures on Nutrition.—The second annual public meeting on nutrition, sponsored by the Chicago Medical Society and cooperating organizations, will be held at the John B. Murphy Memorial Amphitheater, Chicago, October 13-14. Speakers include:

John P. O'Neil, Chicago, The Wedding of the Sciences in Human Nutrition.
Ira Allison, Springfield, Mo., Undulant Fever.
William H. Sebrell Jr., Bethesda, Md., A National Public Health Nutrition Program.
Thelma E. Porter, Ph.D., Chicago, Your Dollar and Your Diet.
Icie Macy Hoobler, Ph.D., Detroit, Maternal Nutrition and Child Health.
William J. Darby, Nashville, Tenn., Obesity.
Ancel B. Keys, Ph.D., Minneapolis, Caloric Nutrition.
Christian P. Segard, Leonia, N. J., Fat Free Certified Milk.
Herman N. Bundesen, Chicago, Public Health and Food.

A round table discussion with questions from the floor will take place each afternoon.

LOUISIANA

Appoint President of State Board.—Dr. William V. Garmer, Bastrop, has assumed his duties as president of the state board of health, succeeding Dr. Waldo L. Treuting, who was appointed professor of public health administration at Tulane University of Louisiana School of Medicine, New Orleans, effective July 1. Dr. Garnier, is a graduate of Tulane, 1925. Dr. Treuting, a graduate of Tulane, 1934, has served in the health department as president since July 1946.

MINNESOTA

General Practitioner Honored.—The University of Minnesota Medical School recently presented an "Outstanding Achievement" medal to Dr. William W. Will of Bertha at an alumni dinner in Minneapolis. Dr. Will was also recently named by the state medical association for the American Medical Association outstanding general practitioner award.

Course in Tuberculosis.—Tuberculosis and other diseases of the chest will be reviewed in a three day course for general practitioners at the University of Minnesota Center for Continuation Study, Minneapolis, October 18-20. The course is sponsored by the American Trudeau Society, the University of Minnesota, Minneapolis, and the state and county Christmas Seal organizations.

MISSOURI

Clinical Conference.—The Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held in the Municipal Auditorium, Kansas City, October 4-7. Guest speakers include:

William H. Amspacher, Washington, Utilization of Medical Corps Officers in the United States Army.
Ignacio Chavez, Mexico City, Mexico, Coronary Heart Disease.
Willard R. Cooke, Galveston, Texas, Rationalism in Regard to Gynecologic Operations.
George Crile Jr., Cleveland, Treatment of Peritonitis and Intra-Abdominal Abscess.
William Dameshek, Boston, Diagnosis of Anemia.
R. Arnold Griswold, Louisville, Ky., Treatment of Traumatic Wounds of Soft Tissues.
Howard T. Karsner, Cleveland, Acute Inflammations of Arteries.
L. Chester McHenry, Oklahoma City, Perforation of the Esophagus.
Samuel F. Marshall, Boston, Gastric Surgery for Peptic Ulcer.
Earl R. Miller, San Francisco, Use of Radioactive Iodine in Medicine.
Ralph V. Platou, New Orleans, Penicillin Therapy of Congenital Syphilis.
Herbert L. Pugh, Washington, D. C., Ideas for Future Use of the Medical Profession in a National Emergency.
Richard G. Scobee, St. Louis, The Doctor and the Cross-Eyed Child.
William A. Sodeman, New Orleans, Fever of Undetermined Origin.
James E. M. Thomson, Lincoln, Neb., What Fractures to Treat and What Fractures to Refer.
John B. Wear, Madison, Wis., Hydronephrosis — Symptoms and Diagnosis.

Daily round table luncheons will be held in medicine and surgery. Both scientific and technical exhibits will be on display.

NEBRASKA

Society of Anesthesiologists.—At a meeting in Omaha, May 12, the Nebraska Society of Anesthesiologists, a component member of the American Society of Anesthesiologists, Inc., was founded. Officers elected were: Dr. Dorothy Thompson, Omaha, president, and Dr. Kenneth E. Latterell, Omaha, secretary-treasurer.

Brigadier General Carroll Appointed Dean.—On September 1, Dr. Percy J. Carroll, St. Louis, retired brigadier general, will become dean of Creighton University School of Medicine, Omaha, and chief of staff at Creighton Memorial-St. Joseph's Hospital. He will hold the rank of professor of preventive medicine. He was appointed dean and professor of public health at the St. Louis University School of Medicine in 1946. During World War II he was commandant of the Army Medical Center of Manila and later Chief Surgeon of the Southwest Pacific Theater of Operations and the Far East. He received the Distinguished Service Medal for his work in evacuating the wounded from Manila. In 1944 he returned to the United States and assumed command of Vaughn General Hospital, Hines, Ill. He retired from the army in 1946.

NEW YORK

Personal.—Dr. John R. Williams, Rochester, on July 7 received Rochester's Museum 1948 Weisenbeck Memorial Award for his work in encouraging interest in hobbies in Rochester.——Dr. Robert H. Broad, Binghamton health officer, was elected president of the New York State Association of Health Officers at its annual meeting in Saratoga Springs in July.

Appoint Deputy Health Commissioner.—Dr. Hollis S. Ingraham, director of the division of communicable diseases of the state department of health, has been named deputy commissioner. The present deputy commissioner, Dr. William A. Brumfield Jr., will become first deputy. Dr. Ingraham's position was added because of the department's expanding program.

Board of Arbitration.—The Oneida County Medical Society has approved the appointment of a medical board of arbitration to which insurance companies may submit physicians' bills which they believe to be excessive. The move was the result of sharp increases in automobile liability insurance rates recently effective in the area. The panel is made up of ten physicians. The medical society is reported to have appointed a committee to study the situation and make recommendations to the society. The society also plans to appoint a panel of physicians who will handle emergency calls relayed to them from police through the doctors' telephone exchanges.

Canandaigua Hospital Joins Medical Center.—Under an agreement reached by the officials of the Veterans Administration and the University of Rochester School of Medicine and Dentistry, the Canandaigua Veterans Administration Hospital becomes part of the university's Strong Memorial Hospital medical center. As a center of neuropsychiatric research, the Rochester hospital will aid the veterans' facility. A committee has been named to work out the details of the relationship: Dr. John Romano, professor of psychiatry, chairman; Dr. William S. McCann, professor of medicine; Dr. Paul H. Garvey, associate professor of medicine in neurology; Drs. Nils B. Hersloff and Edwin M. Levy, of the Canandaigua institution. The affiliation will also make it possible for the Veterans Administration patients to receive surgical treatment now unavailable.

New York City

Dr. Cissel Director of Surgery.—Dr. Benjamin M. Cissel, professor of clinical surgery at Long Island College of Medicine, has been named director of surgery of the college division at Kings County Hospital. His appointment fills the vacancy created by the recent promotion of Dr. E. Jefferson Browder to full professor and head of the department of surgery at the medical school.

Brooklyn "Healthmobile."—The Brooklyn Tuberculosis and Health Association has purchased a "healthmobile" for an information center and chest x-ray unit on wheels, as part of its drive to reduce tuberculosis in Brooklyn. Citizens of the borough may receive free tuberculosis information and roentgenograms for $1. According to the *New York Times*, Everett M. Clark, president of the association, said that 15 persons died weekly in Brooklyn from tuberculosis and that there were almost 2,000 new cases each year. The association took some 38,000 roentgenograms of the chest last year.

Foreign Language Press Committee.—Dr. Kendall Emerson, president, New York Tuberculosis and Health Association, has announced the formation of a foreign language press committee to aid the association in its public relations program. The new group will be headed by Sigmund Gottlober, director of the American Foreign Language Press, 258 Fifth Avenue. Dr. Herbert R. Edwards, executive director, New York Tuberculosis and Health Association, and Frederick Hodgson, public relations director, will serve as ex officio members. The committee, Dr. Emerson said, will be a continuing body functioning not only in fund raising but in carrying on year-round work on behalf of health education, tuberculosis case finding and rehabilitation.

OHIO

Postgraduate Seminars.—The committee on education of the Ohio State Medical Association will present three practical postgraduate seminars this fall: October 21, Elks Home, Chillicothe, "New Advances in Diagnosis and Treatment of Chest Diseases"; October 27, American Legion Hall, Lima, "Practical Cardiology"; November 3, Mansfield-Leland Hotel, Mansfield, "Practical Dermatology."

Anesthesiologists' Meeting.—The American Society of Anesthesiologists will hold a joint meeting with the Ohio Society of Anesthesiologists, October 1-2, at the Hotel Commodore-Perry, Toledo. Out of state speakers include: Drs. Robert A. Hingson, Memphis, Tenn., who will speak on "Hypospray"; John Adriani, New Orleans, "Practical Aspects of Chemistry of Anesthetic Drugs"; H. Boyd Stewart, Tulsa, Okla., "Practice of Anesthesiology," and Ivan B. Taylor, Detroit, "Intravenous Procaine." On Saturday a panel on cyclopropane will be held.

OKLAHOMA

Postgraduate Circuits.—The eighth and next to the last circuit in the two year postgraduate course in gynecology is under way in Oklahoma. Instructor for the Oklahoma State Medical Association sponsored postgraduate instruction is Dr. Joseph R. B. Branch, Macon, Ga. The next postgraduate instruction will begin shortly after Jan. 1, 1949, and will be in internal medicine.

Association Awards Fifty Year Pins.—All members of the Oklahoma State Medical Association who have been in active practice in excess of fifty years are being presented fifty year pins. The first twelve pins were presented at the annual meeting in May, and four more have been presented since that time to others of the twenty-six society members now eligible to receive the award. Special county society meetings are scheduled for the next few months to present the remaining pins. Dr. Clarence E. Northcutt, Ponca City, president of the Oklahoma State Medical Association, or councilors of the association will make the presentations.

PENNSYLVANIA

Emergency Service Setup.—Through Dr. Richard C. Kaar, president of the Milton Board of Health, a survey is being made of all local physicians to obtain their hours and file them with the Borough Police to provide an emergency roster.

Graduate Education Institute Begins.—Beginning this month, the second annual program of the Graduate Education Institute of the state medical society will be carried on in ten centers throughout the state to carry medical education to practicing physicians in rural areas. Teaching centers have been set up in Oil City, Johnstown, Williamsport, Harrisburg, Wilkes-Barre, Allentown, Erie, Washington, Clearfield and Lancaster. More than 1,000 doctors, chiefly from rural areas, will register for the season's course. Last year total registration was 850. Beginning in the fourth week of September, eight hours of intensive medical education will be presented each week in each center for a period of five weeks. In April the second half of the course will be given, making ten full days or eighty hours of class room lectures. The faculty will include 216 teachers from the University of Pennsylvania School of Medicine, Jefferson Medical College of Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, Temple University School of Medicine, Woman's Medical College of Pennsylvania, all of Philadelphia, and the University of Pittsburgh School of Medicine. This year the three days of instruction will feature diseases of infants and children. There will also be a day of lecturing on the general practice of medicine with some attention given to the application of radioactive substances in the treating of disease. Lectures begin on September 21 in Allentown, September 22 in Erie, Lancaster, Oil City, Washington, Wilkes-Barre and Williamsport, and September 23 in Clearfield, Harrisburg and Johnstown. The schedules are so arranged that if a doctor misses one session at the center nearest his home he can attend an identical session in a neighboring center on another date.

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Philadelphia

Personal.—The King Christian X Medal of Liberation, Denmark, has been awarded to Bernard Spur, Ph.D., of the Children's Hospital of Philadelphia, in acknowledgment of his wartime aid to Danish children in Greenland.

Honored by the British.—Alfred N. Richards, LL.D., professor emeritus of pharmacology, University of Pennsylvania School of Medicine, who retired July 1 as vice president in charge of medical affairs, and Detlev W. Bronk, Sc.D., medical director of the Johnson Foundation and professor of biophysics at the university, were decorated with the Order of the British Empire at ceremonies at the British Embassy, Washington, D. C. Dr. Richards was decorated for his leadership as chairman of the Committee on Medical Research of the Office of Scientific Research and Development. Dr. Bronk received the honor "in recognition of his many outstanding contributions to the allied war effort." Dr. Harold G. Scheie, assistant professor of ophthalmology, and Dr. Henry C. Bazett, professor of physiology at the university, received the same decoration on earlier dates.

TENNESSEE

First Regional Postgraduate Medical Assembly.—The Nashville Academy of Medicine will conduct its first regional Postgraduate Medical Assembly in Nashville, October 6-7, for the benefit of all physicians in Tennessee and adjacent states. Twelve out of state essayists will discuss obstetrics, eye, ear, nose and throat, orthopedics, urology, plastic surgery, antibiotics, anemias, endocrinology, gynecology and radiology. Credit may be had by members of the American Academy of General Practice for attendance at this assembly. Reservations may be secured at the Andrew Jackson and Hermitage hotels.

Dr. Wilson Appointed Professor of Surgery.—Dr. Harwell Wilson was recently appointed professor and chief of the division of surgery at the University of Tennessee College of Medicine, Memphis. He received his M.D. degree at Vanderbilt University School of Medicine, Nashville, 1932, and took graduate training at the University of Chicago. In 1939 he entered practice in Memphis, and since then has been a member of the faculty of the university. Dr. Wilson entered the military service as a major with the Vanderbilt University General Hospital Unit; later, as a lieutenant colonel, he served as chief of surgery of an overseas hospital in the Mediterranean theater of operations and was then assigned to the consultants' division there. At the time of his discharge from the army he was assigned to the Consultants' Division of the Surgeon General's Office.

WEST VIRGINIA

District Health Conferences.—The annual Northern District Health Conference sponsored by the state department of health will be held October 8 at the Fairmont Hotel, Fairmont. The Southern District Conference is scheduled for October 15, at the West Virginian Hotel, Bluefield. The two meetings will be open to the public.

Ophthalmologists' Meeting.—The fall meeting of the West Virginia Academy of Ophthalmology and Otolaryngology will be held at the Greenbrier, White Sulphur Springs, September 20-21. Dr. James A. Moore, New York, will speak on "Endaural Surgery in the Modified Radical and Radical Mastoidectomies," and Dr. Oscar B. Nugent, Chicago, on "Management of Strabismus."

Emotional Aspects of Disease.—A psychiatric seminar, sponsored by the bureau of mental hygiene of the state health department and the mental hygiene committee of the West Virginia State Medical Association, will be held at St. Mary's Hospital Nurses Home, Huntington, October 6-7. Emotional aspects of the various diseases will be stressed. Clinics on the common neurologic problems are being arranged. Guest speakers include:

Robert H. Felix, Washington, D. C., What Mental Hygiene Program Means to West Virginia.
Oscar C. E. Hansen-Pruss, Durham, N. C., Asthma, Bronchitis and Hay Fever: Psychological Aspects and Treatment.
Frederick G. Dershimer, Wilmington, Dela., Emotional Factors in Industry.
R. Finley Gayle, Richmond, Va., Modern Methods of Treatment in Mental Institutions.
William G. Hamm, Atlanta, Ga., Psychiatric Aspects of Plastic Surgery.
Yale D. Kushoff, Pittsburgh, Clinic on Neuropsychiatric Problems.
Robert M. Creadick, Durham, N. C., Menstrual Disorders.
Ray O. Nonjin, Birmingham, Ala., Psychologic Factors in Common Skin Diseases.

At the round table luncheon Wednesday on "The Use of Community Resources in the Handling of the Psychiatric Office Patient," Dr. Theron S. Hill, Memphis, Tenn., will speak. Guest speaker at the Wednesday reception and dinner will be Dr. C. Charles Burlingame, Hartford, Conn.

HAWAII

Mainland Visitors.—Dr. George P. Guibor, Chicago, arrived in Honolulu August 15 to give an advanced course in eye surgery with special reference to the treatment of muscle defects. Chauncey D. Leake, Ph.D., vice president of the University of Texas and dean of the university's medical school, Galveston, spoke before public meetings on September 7 and 8 in Honolulu.

Pacific Surgeons' Meeting.—Over one hundred surgeons representing every field of surgery gathered in Honolulu at Queens Hospital and the Mabel Smyth Building for the Fourth Congress of the Pan-Pacific Surgical Association, August 30-September 13. This is the first meeting of the organization since 1939 and is the largest held since the association was founded in 1929 under the auspices of the Pan-Pacific Union. The officers of the 1948 Pan-Pacific Surgical Conference are Dr. Frederick L. Reichert, San Francisco, president, and Dr. Forrest J. Pinkerton, Honolulu, Hawaii, secretary-treasurer.

GENERAL

Announce Essay Prize.—The South Atlantic Association of Obstetricians and Gynecologists announces the establishment of the Foundation Prize. Authors on papers on obstetric or gynecologic subjects desiring to compete for the prize may obtain information from Dr. Emmett D. Colvin, Secretary-Treasurer, 1259 Clifton Road, N.E., Atlanta, Ga.

Cancer Fund.—Establishment of the Babe Ruth Cancer Fund with the contribution of $100,000 by the Revere Camera Company of Chicago has been made with the American Cancer Society for general research and for use at the society's discretion. Arrangements are being made to present the check for $100,000 to the American Cancer Society in New York.

Tropical Medicine Awards.—At the Fourth International Congress on Malaria, Colonel Henry E. Shortt, London School of Hygiene and Tropical Medicine, was awarded the Lavaran Prize for his paper "The Pre-Erythrocytic Cycle of Plasmodium cynomolgi." The Walter Reed Medal was presented to Dr. Nicolaas H. Swellengrebel, Amsterdam, Netherlands, for his researches in the field of tropical medicine, particularly in the epidemiology and control of malaria.

Kilmer Prize Award.—A system for identifying drugs from the botanical world by their fluorescent glow when exposed to invisible, near ultraviolet rays has gained the Kilmer Prize for Charles R. Chase Jr., of Stockton, Calif. Mr. Chase was presented with an inscribed gold key by the American Pharmaceutical Association at its national convention in San Francisco last month. Mr. Chase conducted his research while a student at the University of California College of Pharmacy, San Francisco.

Society Elections.—Recently elected officers of the National Federation of Obstetric-Gynecologic Societies include: Dr. Ralph E. Campbell, Madison, Wis., president; Dr. Edward C. Hughes, Syracuse, N. Y., president elect; Dr. Woodard D. Beacham, New Orleans, secretary, and Dr. Richard Paddock, St. Louis, treasurer.——At the annual meeting of the American Association of the History of Medicine in Philadelphia, in May, Dr. Henry R. Viets, Boston, was elected president, and Dr. Benjamin Spector, Boston, secretary. —— The American Medical Women's Association recently installed Dr. Elsie S. L'Esperance, New York, as president, and chose Dr. Dorothy W. Atkinson, San Francisco, as president elect; Dr. Isabel M. Scharnagel, New York, corresponding secretary, and Dr. Mary R. Noble, Bowmansdale, Pa., treasurer.

Reprints on the Lead Problem.—The Lead Industries Association, New York, has published a booklet combining reprints of three papers on the important aspects of health control in industrial lead workers. Dr. William C. Wilentz, medical director, Perth Amboy, N. J., Plant, National Lead Company, discusses the employer, employee and community factors of the problem. Dr. Lloyd E. Hamlin, medical director, and Herbert J. Weber, industrial hygienist, American Brake Shoe Company, Chicago, discuss the medical and engineering aspects of prevention of lead intoxication among brass foundry workers. Copies may be obtained from the Lead Industries Association, 420 Lexington Avenue, New York 17, at 50 cents each.

Fellowship Awards.—Three fellowships in medical research have been announced by the John Simon Guggenheim Memorial Foundation. The recipients are: Dr. Henry Shepard Fuller, assistant professor of preventive medicine, Bowman Gray School of Medicine, Winston-Salem, N. C.: studies of the taxonomy and distribution of mites, in relation to their transmission of diseases; Dr. James Mather Sprague, assistant professor of anatomy, Johns Hopkins University School of Medicine, Baltimore:

studies of the anatomic organization of the spinal motor system, and Dr. Doris Hawkins Phelps, research associate in obstetrics and gynecology, Vanderbilt University School of Medicine, Nashville, Tenn.: studies in reproductive and gynecologic physiology. Dr. Phelps will work at the University of Witwatersrand, Johannesburg, South Africa. The awards are a part of the twenty-fourth annual series of fellowship awards made by the foundation, established in 1925 by the late U. S. Senator Simon Guggenheim and his wife as a memorial to their son.

Subcommittee on Oncology.—The committee on pathology of the National Research Council has appointed the following subcommittee on oncology: Dr. Shields Warren, Boston, chairman; Dr. Balduin Lucké, Philadelphia; Dr. Fred W. Stewart, New York; Dr. Harold L. Stewart, Bethesda, Md.; Dr. Arthur P. Stout, New York; Dr. Milton C. Winternitz, New Haven, Conn., and Dr. Howard T. Karsner, Cleveland, chairman of committee on pathology, ex officio. Brig. Gen. Raymond O. Dart, director of the Army Institute of Pathology, is cooperating with the committee, making the institute's facilities and resources available and providing office space for the permanent secretary. The objectives of the subcommittee are: (1) improvement in the teaching of oncology; (2) dissemination of information on oncology; (3) establishment of criteria for diagnosis of tumors, and (4) simplification of terminology by recommending a single term for each tumor and listing separately the appropriate synonyms.

End Pollution of Ohio Watershed.—After thirteen years of negotiations, governors of seven states and a representative of another on June 30 signed a compact establishing a joint authority to prevent pollution of streams of the Ohio river valley. The action is intended to bring purer water to some 20,000,000 persons in a 200,000 square mile area in Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania and Virginia. Sewage disposal plants will be the main agency used. A compact commission, consisting of three commissioners from each state and three representing the federal government, will draft plans for administering the agreement. The lately enacted Barkley-Taft antistream pollution measure will provide for construction of a stream sanitation laboratory in Cincinnati to cost $4,000,000 and $20,000,000 for loans to communities for establishment of sewage disposal plants.

Baruch Committee Report.—The annual report of the Baruch Committee on Physical Medicine states that about 150 communities in the nation have or are planning civilian rehabilitation programs, as compared with a few limited facilities in physical medicine and medical rehabilitation prior to the war, and that from five approved residencies or fellowships in physical medicine available annually in three medical centers, the number has grown to seventy such residencies and fellowships now available in thirty-four medical centers. Compared to thirty medical schools then offering instruction in physical medicine, there are now sixty. Since the establishment of the committee physical medicine has become the sixteenth officially recognized medical specialty. Of the original allocation of $1,250,000, sums totaling $900,000 were given to Columbia University, New York University and the Medical College of Virginia, Richmond, to establish centers for physical medicine and rehabilitation. The three centers, which are being developed over a ten year period, are designed to serve as models for medical schools and hospitals. Research and training projects are also being conducted under committee grants. In addition to financial support for research and training, the Baruch Committee furnishes professional consultation and advice to the universities participating in its program through its Scientific Advisory Committee, consisting of Drs. Frank H. Krusen, Rochester, Minn., chairman; John Stanley Coulter, Chicago; John F. Fulton, New Haven, Conn., Charles G. Heyd, New York; Andrew C. Ivy, Chicago; William S. Tillet, New York; Frank R. Ober, Boston; Winfred Overholser, Washington, D. C.; Francis O. Schmitt, Ph.D., Cambridge, Mass., and Chauncey D. Leake, Ph.D., Galveston, Texas.

MEXICO

Model Health Center.—The Institute of Inter-American Affairs has signed an agreement with the Ministry of Health in Mexico to construct a model health center in Mexico City, located in one of the poorest and most densely populated parts of the city. The health center will provide services for half of the district's population: clinics for venereal diseases, tuberculosis, acute communicable diseases, maternal and infant hygiene, mental and dental hygiene, a laboratory and facilities for health education, sanitary engineering and inspection, and a milk distribution center. Ample waiting rooms will be provided, and space will be furnished for the library and classrooms for teaching

LATIN AMERICA

Vaccination Requirements for Persons Leaving Colombia.—All persons departing from Colombia, South America, must possess a medical certificate stating they have no infectious or contagious diseases and have also certificates of vaccination against smallpox and yellow fever. According to a resolution issued May 28, 1948, by the Minister of Health, the latter certificates must be issued by an official entity; this has been interpreted to mean that vaccination certificates are acceptable when issued by the Colombian Ministry of Health or by national public health services of other countries on Pan American Sanitary Bureau forms. Certificates issued by private physicians or clinics in Colombia or elsewhere are not acceptable. Americans traveling to Colombia may avoid revaccination and delay if they secure acceptable vaccination certificates in the United States. Colombia also requires that persons departing from that country bear official certificates of vaccination against typhoid "in the event of typhoid fever and whenever the situation warrants."

FOREIGN

Gift of Electron Microscope to Norway.—The Institute of Bacteriology of the University of Oslo, Norway, has received an RCA electron microscope as a gift from Erling H. Samuelsen, Norwegian shipowner. The instrument is Norway's first electron microscope and will be applied to research in the different virus infections in Norway. The Institute of Bacteriology, a branch of the government-operated University of Oslo, was founded ten years ago with funds provided by Kaptein W. Wilhelmsen, also a shipowner. Its work is directed mainly toward instruction of medical students and research in bacteriology and serology.

CORRECTION

Hospital Research Committee.—In the June 19, 1948 issue of THE JOURNAL, p. 710, Dr. John Homans, Boston, was incorrectly named as a member of the scientific advisory committee of The Massachusetts General Hospital.

Western Electric Hearing Aids.—The report entitled "Western Electric Hearing Aids, Models 65 and 66, Acceptable" appeared in the June 5 issue of THE JOURNAL (**137**:534). Inadvertently the thickness of Model 66 was recorded as 3.8 cm. (1½ inches), whereas it should have been 2.8 cm. (1 9/32 inches).

Marriages

JOSEPH GEORGE FUREY III, West Orange, N. J., to Miss Loretta Louise Boyan of Englewood, June 12.

LEE FREDERICK VOSBURGH, Passaic, N. J., to Miss Millicent Louise Gordon of Albany, N. Y., June 5.

DAVID SANDERS HOWELL, Boothbay Harbor, Maine, to Miss Margaret Blue of Miami, Fla., June 5.

THOMAS WOODWARD HUTSON Jr., to Miss Patricia Ruth Weiland, both of Miami, Fla., in June.

BERTRAM E. SPROFKIN, Paterson, N. J., to Miss Millie Small of Conway Springs, Kan., June 11.

JAMES KNIGHT QUIGLEY to Miss Florence Theresa Pocock, both of Rochester, N. Y., July 7.

LILLIAN IRENE MCCAIN to Mr. Daniel Miles McFarland, both of Southern Pines, N. C., June 9.

WILLIAM CLAYTON ROBERTSON to Miss Gloria Hoover Tyler, both of Richmond, Va., June 12.

CHARLES G. ADSIT Jr., New York, to Miss Mary Priscilla Amberson of Riverdale, June 12.

NEIL CALLAHAN, Vicksburg, Miss., to Miss Frances Estelle Wilson of Norfolk, Va., June 5.

JAMES KENT RHODES, Raleigh, N. C., to Miss Helen Sara Havnaer of Hickory, June 12.

ROBERT EDWARD DAVIS, Brooklyn, to Miss Harriette Woronow of New York, July 11.

RICHARD P. GLOVE, Cleveland, to Miss Lois Lucille Yost at Wooster, Ohio, July 10.

RICHARD THOMAS JAMES to Miss Georgia C. Graham, both of Atlanta, June 5.

JAMES ALLEN, Florence, S. C., to Miss L. Johnson of Marion, June 5.

Deaths

Gilbert Christian Anderson, New Orleans; born in Jackson, Tenn., Dec. 11, 1885; Columbia University College of Physicians and Surgeons, New York, 1917; clinical professor of surgery at Louisiana State University School of Medicine; formerly instructor in neurosurgery at Tulane University of Louisiana School of Medicine; co-founder and first president of the New Orleans Society for Neurology and Psychiatry; past president of the Louisiana State Medical Society and the Orleans Parish Medical Society; member of the American Medical Association, Southeastern Surgical Congress, National Gastroenterological Association, Southern Psychiatric Association and the Central Neuropsychiatric Association; member of the founders' group of the American Board of Surgery; specialist certified by the American Board of Neurological Surgery; fellow of the American College of Surgeons; served during World War I; at one time on the staff of the Mayo Clinic, Rochester, Minn.; neurologic surgeon at the Charity Hospital of Louisiana, where he was president of the medical staff, Southern Baptist Hospital, Hôtel Dieu, French Hospital, Eye, Ear, Nose and Throat Hospital, Flint Goodridge Hospital of Dillard University, Touro Infirmary and the U. S. Marine Hospital; consulting neurologic surgeon, Gulf, Mobile and Ohio Railroad; died June 27, aged 63, of cerebral arteriosclerosis.

William Thomas Corlett, Cleveland; born in Orange, Ohio, April 15, 1854; University of Wooster Medical Department, Cleveland, 1877; L.R.C.P., London, 1881; professor emeritus of dermatology at the Western Reserve University School of Medicine; specialist certified by the American Board of Dermatology and Syphilology; a founder and past president of the Cleveland Medical Library Association; in 1937 furnished and endowed a room in the Cleveland Medical Library dedicated to research in dermatology and syphilology; past president of the American Dermatological Association; in 1883 he was elected to the Cleveland Board of Health and was active in the development of health program for public schools in Cleveland; member of the American Medical Association and in 1902 member of its House of Delegates; founder of the department of syphilology and dermatology at Lakeside Hospital; served as consulting dermatologist to the City, St. Alexis and Babies and Childrens hospitals; in 1943 received an honorary doctorate of humanities from Western Reserve University; author of "Medicine-Man of the American Indian and His Cultural Background" and other books; died June 11, aged 94, of cerebral thrombosis.

William Van Pelt Garretson ● New York; born in Jersey City, N. J., March 2, 1880; Columbia University College of Physicians and Surgeons, New York, 1903; formerly clinical professor of neurology at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Psychiatry and Neurology; a member of the medical board and advisory committee on neurology and psychiatry at Doctors Hospital; served as neuropsychiatrist at Vanderbilt Clinic and consulting neuropsychiatrist at Flower and Fifth Avenue Hospitals and Reconstruction Hospital; consulting neuropsychiatrist at the Bayonne (N. J.) Hospital, Lawrence Hospital in Bronxville, N. Y., New York State Reconstruction Home, West Haverstraw, Manhattan State Hospital and Harlem Hospital; consulting neuropsychiatrist and endocrinologist at St. Clare's Hospital, where he died June 5, aged 68.

James LeRoy Campbell ● Atlanta, Ga.; born in Hopewell, Ga., July 15, 1870; Atlanta Medical College, 1893; emeritus professor of clinical surgery at the Emory University School of Medicine; past president of the Fulton County Medical Society; member of the founders' group of the American Board of Surgery; fellow of the American College of Surgeons; served on the staffs of the Emory University and Grady Memorial hospitals; director of the Sheffield Cancer Clinic, Georgia Baptist Hospital; in 1937 his name was inscribed on the L. G. Hardman Loving Cup, awarded annually to the physician considered to have rendered the most distinguished medical service during the previous year; for many years chairman of the executive committee of the Georgia division of the Field Army of the American Cancer Society; from 1939 to 1946 member of the board of directors of the American Cancer Society; died June 11, aged 77, of coronary thrombosis.

James Stewart ● Jefferson City, Mo.; born in Glasgow, Scotland, Sept. 22, 1874; Barnes Medical College, St. Louis, 1895; at one time practiced in Holstein, Mo., where he served as coroner of Warren County and as local surgeon for the Missouri, Kansas and Texas Railroad; formerly associated with the U. S. Public Health Service; served as secretary of the state board of health and as state health commissioner; in 1929 established what is now the bureau of vital statistics of Missouri; formerly director of the hygiene division of the public school system in St. Louis; formerly member of the state legislature; an Affiliate Fellow of the American Medical Association; member of the American Public Health Association, Missouri Crippled Children's Society and the Missouri State Tuberculosis Association, of which he had been president; served as a member of the city chamber of commerce; on the staff of St. Mary's Hospital, where he died May 18, aged 73, of cerebral hemorrhage.

Frank Vero ● New York; born in Czechslovakia in 1897; Univerzita Komenskeho Fakulta Lekarska, Bratislava, Czechoslavakia, 1922; professor of dermatology and syphilology at the New York Polyclinic Medical School and Hospital; instructor in dermatology at the Columbia University College of Physicians and Surgeons; member of the American Academy of Dermatology and Syphilology; specialist certified by the American Board of Dermatology and Syphilology; formerly secretary of section on dermatology and syphilology of the New York Academy of Medicine; assistant visiting dermatologist at the Lincoln Hospital; attending dermatologist and syphilologist to the New York Polyclinic Medical School and Hospital, Presbyterian Hospital and Vanderbilt Clinic; died May 18, aged 50.

William Melville Smith ● Olean, N. Y.; born in Olean, N. Y., Dec. 20, 1900; University of Buffalo School of Medicine, 1924; fellow of the American Public Health Association; for many years coroner of Cattaragus County; from 1937 to 1942 assistant district state health officer in New York state; major in the medical corps, Army of the United States, serving in England during World War II; formerly director of preventable diseases, North Dakota State Department of Health in Bismarck, and acting state health officer; served on the faculty of St. Bonaventure (N. Y.) College and as consultant on the staff of the Edward J. Meyer Memorial Hospital in Buffalo; died May 29, aged 47, of coronary thrombosis.

Charles Henry Young, La Porte, Texas; born in Everett, Mass., March 22, 1876; Tufts College Medical School, Boston, 1905; chief of hospitalization for the U. S. Army in England during World War I; formerly superintendent of the Presbyterian Hospital in New York, Hospital of the Good Shepherd in Syracuse, N. Y., Maine General Hospital, Portland, Mountainside Hospital, Montclair, and Stamford Hospital in Stamford, Conn.; at one time temporary superintendent of the Jefferson Hospital in Birmingham, Ala., and associate professor of hospital administration at the Syracuse (N. Y.) University College of Medicine; died in the U. S. Naval Hospital, Houston, Texas, May 22, aged 72.

Louis Albert Thomas, Red Oak, Iowa; born in 1862 (licensed in Iowa in 1893); member of the American Medical Association; formerly secretary of the state board of health, secretary of the state board of medical examiners and state registrar of vital statistics; for many years health officer and medical inspector of schools for the city of Red Oak; charter member of the board of directors of the Montgomery County Chapter of the American Red Cross, serving as executive secretary for many years; affiliated with the Murphy Memorial Hospital, where he died May 26, aged 86, of carcinoma of the colon.

John George Abbott, West Hollywood, Calif.; Jefferson Medical College of Philadelphia, 1905; died May 22, aged 69, of bronchopneumonia.

Elmer E. Allenbaugh, Dale, Ind.; Cincinnati College of Medicine and Surgery, 1888; died June 6, aged 87, of myocarditis.

Gabriele Ariola, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1915; died in Hollywood, Fla., June 7, aged 71, of pneumonia.

Alonzo Eugene Austin, New York; New York Homeopathic Medical College and Hospital, New York, 1897; formerly on the faculty of his alma mater; died in the Flower and Fifth Avenue Hospitals, June 20, aged 79, of cerebral arteriosclerosis.

William Emerson Barnes, Evansville, Ind.; Indiana University School of Medicine, Indianapolis, 1916; served during World War I; for many years connected with the county board of health; past president of the staff of Deaconess Hospital; died in McFarland Hospital, Lebanon, Tenn., May 23, aged 56, of cerebral hemorrhage.

Ernest Edward Bishop ● Cincinnati; University of Cincinnati College of Medicine, 1919; tuberculosis coordinator of Hamilton County since 1941; member of the American Trudeau Society; instructor in medicine at his alma mater; formerly superintendent of the Hamilton County Tuberculosis Sanatorium; on the staff of the Cincinnati General Hospital; died June 13, aged 53, of coronary occlusion.

Joseph Bixby ● Geneva, Neb.; University Medical College of Kansas City, Mo., 1900; past president of the Nebraska State Medical Association; mayor of Geneva from 1932 to 1946; during World Wars I and II served on the advisory and examining boards of Fillmore County; affiliated with Geneva General Hospital; died in Chicago June 25, aged 72, of heart disease.

Stonewall Jackson Blackmon ● Kershaw, S. C.; Jefferson Medical College of Philadelphia, 1918; died June 15, aged 55, of coronary occlusion.

Andrew Blair ● Charlotte, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1924; served during World War I; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; past president of the Mecklenburg County Medical Society; on the staff of Presbyterian Hospital, where he died June 3, aged 52, of coronary occlusion.

James Michael Borgia, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1918; on the staff of the Adelphi Hospital; died June 9, aged 57, of cirrhosis of the liver.

Walter William Boyne, East St. Louis, Ill.; St. Louis University School of Medicine, 1913; formerly county coroner; served during World War I; died June 23, aged 58, of streptococcic endocarditis.

James Richard Brandon, Canton, Ohio; Ohio State University College of Medicine, Columbus, 1925; specialist certified by the American Board of Otolaryngology; on the staff of the Aultman Hospital; member of the American Medical Association; died May 29, aged 51, of carcinoma of the right kidney.

William Ausborn Brewer ● Cowan, Tenn.; Memphis Hospital Medical College, 1911; served overseas during World War I; died May 24, aged 65, of myelogenous leukemia and diabetes mellitus.

Elizabeth Stow Brown, New York; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1885; secretary of the Montclair (N. J.) Chapter of the American Red Cross during World War I and decorated by the French government for her services to the American Hospital in Paris; died in the New York Infirmary April 9, aged 87, of arteriosclerotic heart disease with decompensation and mesenteric thrombosis.

William R. Brumfield, Gloster, Miss.; Louisville (Ky.) Medical College, 1891; member of the American Medical Association; past president of the Amite County Medical Society; formerly member of the state legislature, board of aldermen and school board; died June 7, aged 80, of lobar pneumonia.

Harry Ralph Carroll, Cincinnati; University of Cincinnati College of Medicine, 1912; member of the American Medical Association; died at St. Mary's Hospital May 10, aged 58, of congestive heart failure and hypertension.

Roy Lewis Carter, Louisville, Ky.; Hospital College of Medicine, Louisville, 1898; county coroner; affiliated with the Kentucky Baptist and St. Anthony's hospitals; died May 10, aged 74, of coronary occlusion.

David Troy Cheairs, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; member of the American Medical Association; medical examiner for the Workmen's Compensation Commission; on the staffs of St. Vincent's and Baptist State hospitals; died May 28, aged 62, of coronary heart disease.

Martin Francis Crotty ● Cambridge, Mass.; Boston University School of Medicine, 1924; member of the New England Obstetrical and Gynecological Society; served during World War I; affiliated with the Chester Hospital; died June 5, aged 54, of cerebral hemorrhage.

Albert Johnston Gardner, Norborne, Mo.; Washington University School of Medicine, St. Louis, 1901; city health officer; died in St. Joseph, May 4, aged 74, of cerebral hemorrhage.

Joseph Savan Gatlin ● Laurel, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1912; served overseas during World War I; died June 14, aged 61, of coronary thrombosis.

Frederick William Gessner ● Dysart, Iowa; Northwestern University Medical School, Chicago, 1910; past president of the Tama County Medical Society; for many years served on the board of education and as health officer; died June 7, aged 68, of coronary occlusion.

James Garfield Janney ● Dodge City, Kan.; Ensworth Medical College, St. Joseph, Mo., 1910; formerly associated with the Indian Service; served during World War I; died in De Paul Hospital, St. Louis, May 26, aged 64, of dislocation of the cervical spine with paraplegia received in an automobile accident.

George Klumpner, Ottawa, Ill.; Loyola University School of Medicine, Chicago, 1921; member of the American Medical Association; past president of the La Salle County Medical Society; served during World War I and during World War II; psychiatrist for the La Salle County draft medical advisory board; affiliated with the Ryburn-King Hospital, where he died June 1, aged 55, of coronary occlusion.

Minerva Blair Pontius ● Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; died May 1, aged 77, of chronic myocarditis.

Elias Pratt, Essex, Conn.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; member of the American Medical Association; past president of the Connecticut State Medical Society, Connecticut Public Health Association and the Litchfield County Medical Society; for many years practiced in Torrington, where he was on the staff of the Charlotte Hungerford Hospital, city health officer and school and city physician; died May 28, aged 88, of coronary occlusion.

Alfred Skippen, Portland, Ore.; Victoria University Medical Department, Coburg, Ontario, Canada, 1892; died May 8, aged 88, of senility.

Harry Wilbur Smiley, Indio, Calif.; University of Arkansas School of Medicine, Little Rock, 1918; member of the American Medical Association; formerly associated with the Indian Service; died in the Scripps Memorial Hospital, La Jolla, April 26, aged 63, of bronchogenic carcinoma of the right lung.

James Herbert Sowerby, Bedford, Va.; Northwestern University Medical School, Chicago, 1907; died in the John Russell Hospital May 23, aged 65, of coronary occlusion.

Charles William Spragg, Waynesburg, Pa.; Jefferson Medical College of Philadelphia, 1897; member of the American Medical Association; on the staff of the Greene County Memorial Hospital; died in the Western Pennsylvania Hospital, Pittsburgh, May 4, aged 75, following a prostatectomy.

Robert Armstrong Stewart, Independence, Iowa; Jefferson Medical College of Philadelphia, 1903; member of the American Psychiatric Association and the American Medical Association; superintendent of the Independence State Hospital, where he died May 24, aged 69, of coronary thrombosis.

Samuel Stewart ● Syracuse, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; formerly school commissioner; served overseas during World War I; on the staff of the Crouse Irving Hospital; died May 15, aged 68, of chronic nephritis and hypertension.

Troy Warren Swallum, Spencer, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1919; member of the American Medical Association; served as county coroner; died in Mercy Hospital, Iowa City, May 5, aged 57, of coronary thrombosis.

Bartholomew Phillip Sweeney ● Leominster, Mass.; Baltimore Medical College, 1911; member of the American Urological Association; for many years member of the city health department; on the staff of the Leominster Hospital; died May 20, aged 61, of heart failure.

Lester James Talbot ● New York; University of Pennsylvania School of Medicine, Philadelphia, 1936; assistant professor of obstetrics and gynecology at the New York University College of Medicine; served as a fellow in medicine of the National Research Council; on the staff of the Bellevue Hospital; died in the Mount Sinai Hospital June 4, aged 37, of acute staphylococcic endocarditis.

Edith Subers Thompson ● Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1903; died April 15, aged 67, of hypertension and arteriosclerosis.

Frank Van Doren, Portland, Ore.; University of Pittsburgh School of Medicine, 1911; served during the Spanish-American War and World War I; died May 23, aged 68, of congestive heart failure.

Harry D. Vincent, Schenectady, N. Y.; Baltimore Medical College, 1893; died in the Glenridge Sanatorium May 7, aged 84, of tuberculosis of the lungs.

William Zimmer ● Hillside, N. J.; Columbia University College of Physicians and Surgeons, New York, 1931; served during World War II; on the dispensary staff of the Elizabeth General Hospital and on the staffs of the Community Hospital, Presbyterian Hospital and the Beth Israel Hospital in Newark, where he died June 9, aged 40, of coronary disease.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 31, 1948.

The Inauguration of National Health Service

The British Medical Association has examined the question of "improper practices" alleged in Parliament by a socialist member, because some doctors refused to take certain patients on their lists for the National Health Service. The association finds that the service has started smoothly in most districts. Nevertheless, difficulties are being met with, as is inevitable with such a vast piece of social legislation. These should be neither exaggerated nor glossed over. It would be unfair to put blame on doctors for misunderstandings which are not of their making, and still more unfair to charge the entire medical profession with incorrect behavior which involves only a small minority. The British Medical Association has laid down the following points:

1. The basis of family medical practice is free choice, which works both ways. No doctor should be forced to take any particular patient, just as no person should be forced to have any particular doctor. Neither of them need give any reason for refusal. 2. The service is open to all irrespective of income. The association is confident that the profession in general would strongly deprecate the refusal of any doctor to accept a person as a National Health Service patient on financial grounds. The decision whether to be a public or private patient must be a matter for the individual. 3. Every doctor has a right to set a limit to the number of patients he is prepared to accept on his list. Within the service all receive equal treatment according to their medical needs. It is impossible for the doctor—or indeed for the government or the administration—to give any public patient advantages or privileges not enjoyed by others. It must never be overlooked that there is a grave shortage of doctors and facilities. 4. The association is confident that the profession will feel strongly that, although a doctor is fully entitled to decline work for which he has no special aptitude, it would be entirely wrong for him to discriminate against particular classes; e. g., to refuse to accept as patients children or old persons on the ground that they involve too much work. This is regarded as contrary to the standards of medical practice. It might have been added that some of the dissatisfaction expressed at the inauguration of the service is due to the exaggeration of its advantages and the ignoring of its drawbacks by the socialists, in the usual manner of politicians.

Jonathan Hutchinson as an Educationist

The recent book, "A Country Museum. The Rise and Progress of Sir Jonathan Hutchinson's Educational Museum at Haslemere," portrays this great clinician as versatile in fields outside of medicine. Hutchinson believed that museums should be teaching institutions for both natural science and human history. That exhibits should illustrate definite points, be informatively labeled and supplemented with drawings, photographs or anything else appropriate. "A museum should become a richly illustrated book. It should be a place to which teachers would take their pupils, not once a year as a holiday, but frequently, as the best method of serious study." His enthusiasm he also expressed in this outburst: "Who knows not the delights of a museum after the fatigue and disappointment of books!"

For the teaching of human history and geology he adopted what he called "a space for time method." For each subject a wall of long gallery was ruled into equal divisions, each representing a certain period, which for human history was a century, for geology so many million years. At Haslemere, his country residence near London, at his week end intervals from professional work, he gave much time to the instruction of children and adults. He lectured on such diverse subjects as "the age of the earth," "fruits and seeds," "chalk," "Hebrew history and Fénelon." Often he would preface his lecture by remarks on objects that he had picked up on his way to the museum such as a flower or a piece of flint. Hutchinson died in 1913, and in 1926 the museum was handed over to trustees by his family.

The Haslemere Education Museum has long been a model of what the museum of a small town should be and has exerted a wide influence on other museums. It has won a unique position by a valuable system of regular lectures to organized parties of school children, of whom nearly 1,000 came in 1946. Hutchinson had no time for what the ordinary man calls amusement, but all his work, whether investigation or teaching, was for him amusement.

PARIS

(From Our Regular Correspondent)

July 15, 1948.

Penicillin and Tuberculosis

Penicillin has been considered as having no effect on the tubercle bacillus. However, P. Courmont and H. Cardere have just reported to the Society of Biology and to the Society of the Lyons Hospitals their research which proves the bacteriostatic and bactericidal (above certain doses) action in vitro of penicillin on Mycobacterium tuberculosis. The authors (S. Arloing and P. Courmont) used a homogenous culture of M. tuberculosis in a liquid medium, where they develop in three days only; the bacilli are separated one from another in this medium and in this way are better exposed to the action of the antibiotic. A series of tubes containing, with the culture bouillon, penicillin in quantities decreasing from 5,000 units to 10 units per cubic centimeter is inseminated with 40,000,000 tuberculosis bacilli and put into an incubator, together with test tubes containing no penicillin. After three days, the bacillus grows in the latter, but after six days there is no growth in the former. Cultures develop only from the seventh to the twentieth day, in inverse ratio to the quantity of penicillin added. There is no culture in the tubes containing 5,000 and 2,500 units. The antibiotic effect is much more noticeable if the quantities of penicillin destroyed at 37 C. in the tubes are replaced regularly day by day. The test tubes containing no penicillin have always given culture in three days. Acting on those researches, the authors intend using penicillin in the treatment of certain cases. The authors are also considering the use of penicillin therapy, at high doses by subcutaneous and intrarachidial route, in tuberculous meningitis, in the place of the toxic streptomycin.

New Treatment of Amebic Dysentery

Recently Lepesme reported in the *Revicw de Botanique Appliquée* that Holarrhena floribunda (a shrub of the apocynaceous family) contains alkaloids specifically effective on dysenteric amebae and cysts. At a recent meeting of the National Academy of Medicine, Crosnier, Merle and co-workers set forth their first therapeutic results.

1. With total extract of this plant, they obtained disappearance of amebae in 9 of 13 cases of acute dysentery and failed in 4; treatment was successful in all of 6 cases of colitis with the cysts present. Those results are the more interesting because the patients had previously been treated without success with emetin.

2. The use of conessine hydrochlorate in 13 cases of acute dysentery (Endamoeba histolytica) was successful in 12 cases. Dosage varies according to the degree of intolerance of the subject: as a rule, 0.50 Gm. per day (0.10 Gm. tablets) is given for four to five days, and then the dose is decreased to 0.40 Gm.,

0.30 Gm., 0.20 Gm.; average total dose: 5 Gm. If there is intolerance above 0.30 Gm. per day, treatments are to be spread out over fifteen to twenty days.

The authors are of the opinion that total extracts of Holarrhena floribunda are as effective as acetarsone; perhaps future experience will permit one to consider it as superior to emetine.

Death of Professor Alexandre Couvelaire

A well known obstetrician, a member of the National Academy of Medicine, has died at the age of 75. He was a disciple of Adolphe Pinard, whom he succeeded. The most important among his numerous works are an anatomicopathologic study of ectopic pregnancies and a study of uteroplacental apoplexy, which is so complete that this disease will henceforth bear his name. His "Introduction to the Study of Obstetrical Surgery" is one of the best medical books. He inaugurated at the Clinique Baudelocque the dispensary for hereditary diseases, an institution with which all maternity hospitals in France have been provided. One of his numerous disciples, Professor Levy-Solal, succeeds him at the Clinique Baudelocque.

Personals

Dr. G. Baehr, chief of the medical department at the Mount Sinai Hospital, president of the New York Academy of Medicine, was received at one of the recent meetings of the Paris National Academy of Medicine.

Dr. A. M. Pappenheimer of New York University has just delivered a lecture at the Pasteur Institute on the diphtheric toxin considered in its relations with the respiratory system.

ITALY

(From Our Regular Correspondent)

July 9, 1948.

Stenosis of the Esophagus

Reports were presented during the recent National Congress of Surgery on stenosis of the esophagus. Professor Redi reported on cicatricial stenosis and Professor Ferreri and Dr. Coppo on the diagnosis of stenosis of the esophagus by means of esophagoscopy.

Professor Redi discussed stenosis resulting from the ingestion of caustic solutions. Children have paid the largest tribute to these grave incidents. Rapid improvement after the acute incident leads the family of the victim and sometimes the physician to a fallacious optimism and to the omission of adequate prophylaxis of the future stenosis. Young persons may be saved instead of becoming unfortunate carriers of a gastric fistula, condemned to a short and unhappy existence.

With regard to therapy, the speaker distinguishes two groups of stenosis: those which may be benefited by conservative treatment based only on subsidiary surgical measures such as peroral dilation and the graver cases in which extensive surgical treatment is required to create a new way of communication between the part of the esophagus above the stricture and the stomach. The speaker discussed the complex surgical procedures which have been employed in prethoracic esophagoplasty. The results, sometimes brilliant but uncertain, have induced surgeons to study methods of improving the esophagoplasty.

Great interest was shown in the results of the Anglo-American surgeons whose methods are based on using the stomach, which is drawn into the thorax through a diaphragmatic breach until anastomosis of the fundus with a portion of the esophagus above the stenosal lesion may be accomplished. With ingenuity those anastomoses, which can be combined with resection of the diseased esophagus, may be practiced also above the arch of the aorta, thus carrying the stomach almost to the superior orifice of the thorax. The results were entirely satisfactory. Professor Redi predicted the use by Italian surgeons of these definitely promising procedures.

In the second part of the report Professor Ferreri and Dr. Coppo furnished evidence of the importance of endoscopy in diagnosis. Esophagoscopy deserves to become the common procedure in all patients who have disturbances of the esophagus. Dysphagia and hematemesis are the main symptoms which require esophagoscopy. Aneurysm, advanced cachexia, severe diabetes and hyperazotemia are to be considered as contraindications to endoscopic examination.

With regard to anesthesia the speakers recommended limiting general anesthesia to the cases of intractable children or cases in which it may be a means of relieving a spastic condition of the esophagus. In other cases local anesthesia, as a rule, is recommended and it may be preceded by basal anesthesia. In young infants and in old persons one may use either one of the types of anesthesia.

Among the contributions presented on this subject, Professor Broglio of Belluno discussed two methods of esophagoplasty most frequently employed, that of Lexer (jejunodermoesophagostomy) and that of Wullstein (colonodermoesophagostomy). He reported 3 patients with insurmountable stenosis of the esophagus after the ingestion of caustics, operated on with favorable results. One of them submitted to twenty-four interventions before he recovered. The speaker also discussed the modifications of the technic which he had applied to the original surgical methods.

In the discusion Professor Dogliotti, of the University of Turin, emphasized the excellent results obtained by Broglio, but pointed out the difficulties in doing prethoracic plastic operations; he insisted that one should practice dilation as soon as possible.

At the end of the discussion Professor Redi emphasized that concerning the lower third of the esophagus many surgeons agree to institute the new intrathoracic surgery, while concerning the median and upper thirds many authors have a reserved attitude. It is important to note that this surgery requires a complete and suitable instrumentation.

Meeting of Dr. Pappenheimer (New York) and Dr. Holt (London) in Naples

An interesting scientific meeting took place between Dr. A. M. Pappenheimer from the University College in New York and Dr. L. B. Holt, director, Department for Toxins and Anatoxins, Wright Institute, London, at the Italian Scientific Institute and in the presence of many authorities of various universities. Present were many Italian scientists and many from abroad. Dr. Pappenheimer discussed his research on the allergic reactions to diphtheric antigens which are an obstacle to the extensive vaccination of adults. The importance of the problem has grown with the increased incidence of diphtheria in many countries. Dr. Pappenheimer demonstrated that the allergic reactivity is the highest in Schick-negative persons. Based on these results experiments of vaccination were initiated in adults in New York. Dr. Holt, Professor Carlinfanti and Professor Zironi participated in the discussion.

Conferences Held by Drs. Kessler and Weintrob

Contemporaneously there have been held two important conferences by Drs. Kessler and Weintrob in the rooms of the United States Information Service. The conference of Dr. Kessler dealt with the rehabilitation of amputees. An interesting motion picture in colors was shown on the same subject. In addition to its technical value, this conference brought forth statements of sociophilosophic character of great importance. Dr. Kessler is going to Greece for additional conferences, having been invited by the Greek Government. Dr. Weintrob also was successful with his subject, Surgical Lessons of World War II.

Correspondence

RADON TREATMENT OF CANCER OF THE BLADDER

To the Editor:—Dr. Benjamin S. Barringer in the discussion of his paper, "Twenty-Five Years of Radon Treatment of Cancer of the Bladder" in THE JOURNAL (**135**:616-618 [Nov. 8] 1947), questioned many features of an article of mine, "A Comparison of Radiation and Surgery for Cancer of the Bladder," (J. A. M. A. **134**:501-507 [June 7] 1947. He concluded, "I doubt the accuracy of his published results."

Dr. Barringer may interpret the figures as he sees fit, but the accuracy of them has been substantiated by an independent observer. This substantiating study has been recently published as a part of an editorial comment in the abstract section of the new journal *Cancer*.

Radiation of vesical cancer is a widely accepted method of therapy, so that the accuracy of published results obtained in 300 consecutive cases which were treated during a time of great enthusiasm should be important to all those dealing with this disease. Dr. Barringer's remarks had increased the therapeutic confusion particularly by doubting the principal basis of my article, the statistics.

VICTOR F. MARSHALL, M.D., New York.

TREATMENT OF MENINGITIS

To the Editor:—I have read with interest the letter from Dr. David Lehr which appeared in THE JOURNAL July 24, page 1150.

Most of the apparent differences between Dr. Lehr's results and ours are due to different objectives and a difference in the methods used. We were attempting to determine whether a larger dose of sulfonamide compounds than is customarily used would lower the fatality rate in meningitis, and we employed the sulfadiazine-sulfamerazine combination in the hope that it would prevent the increase in renal calculi which might otherwise result from the increased dose, or better still, might lower the incidence of renal calculi in spite of the increased dose. Our paper reported the results obtained with this higher dose.

We agree that it would be unfortunate if anyone should misconstrue our report to mean that, if similar doses of sulfonamide compounds were employed, the incidence of calculi would not be less in the patients receiving the sulfonamide compounds than in those receiving a single sulfonamide compound.

The proportion of patients who received sulfonamide drug intravenously was no different in our two series. The same clinicians were responsible for the treatment in both instances and the same criteria were employed to select those patients who were to receive the sulfonamide compounds by the intravenous route. There were no instances in either series in which conjunctivitis occurred alone. Whenever conjunctivitis was attributed to hypersensitivity to sulfonamide drug, it occurred along with a sulfonamide rash.

The one real difference in our findings is the increased incidence of sensitization when two drugs are used compared to one drug alone. This may have been due to the differences in total dosage employed in our two series, but the evidence (cited in our discussion) which we had previously obtained when we used sulfadiazine-sulfathiazole mixtures in pneumonia is against this conclusion. Theoretic reasons might be advanced in favor of either possibility; that is, either an increase or a decrease in the incidence of sensitization when a combination of drugs is used. Accordingly, the only way to determine which point of view is correct is to carry out controlled studies in several centers in which such a comparison is made, using the identical total dosage in each instance. We hope that such studies will be undertaken. Regardless of the results of these studies, however, we feel that the conclusion in our original article is still valid; namely, "that in the doses employed for the treatment of meningococcic meningitis the disadvantages of using a mixture of sulfadiazine and sulfamerazine outweigh the advantages."

HARRY F. DOWLING, M.D., Washington, D. C.

Medical Motion Pictures

FILM REVIEWS

Some Aspects of Clinical Endocrinology. 16 mm., black and white, silent, 1,375 feet (4 reels), showing time forty-nine minutes (sound speed). Prepared in 1936 by Lewis M. Hurxthal, M.D., Medical, Surgical and Neurosurgical Departments of Lahey Clinic, Boston, Mass. Produced by and procurable on loan from: Worcester Film Corporation, 131 Central Street, Worcester, Mass.

This film is a review of each gland of internal secretion with a fairly successful attempt to show a patient with the diseases due to overactivity or underactivity of each gland. It contains an excellent collection of cases and, since the appearance of the patients with these diseases does not alter through the passage of the years and since the authors confined themselves to basic facts which also have not changed, the film is just as accurate now as when printed. The "split frame" technic of showing patients "before and after" is well done.

If the film were in color and the photography of more recent perfection, it would still probably be the best in its field. As it is, the lack of color and the "flicker" would almost immediately impress an audience with its antiquity, and the audience would lose interest in what was being presented regardless of its perennial soundness. This production is suitable for showing to practicing physicians, medical students and nurses.

The School That Learned to Eat. 16 mm., color, sound, 800 feet (1 reel), showing time twenty-five minutes. Prepared in 1948 by the University of Georgia, School of Education, Athens, and sponsored by General Mills, Inc., Minneapolis. Produced by Southern Educational Film Production Service. Procurable on loan from: General Mills, Inc., 400 Second Avenue, South, Minneapolis 1.

The film tells the story of how a small village in Georgia improved the health of its children and a whole community. The health situation in their village was studied. One of the important factors found which contributed to poor health related to poor eating habits, and the film shows how the community improved its health by improving its eating practices. The solution was worked out by using old as well as new and ingenious devices. It is an interesting story for adults and teachers and could be understood and enjoyed by children. The color photography is excellent.

Coarctation of the Aorta. 16 mm., color, sound, 900 feet (1 reel), showing time twenty-seven minutes. Prepared in 1948 by John C. Jones, M.D., Thoracic Surgery Department, Children's Hospital, Los Angeles, Calif. Produced by Billy Burke, Hollywood, Calif. Procurable on loan from the author, 1136 West Sixth Street, Los Angeles 14.

This film briefly reviews the embryology, anatomy and physiology of coarctation of the aorta, outlines the clinical features and roentgen findings, then explains the surgical treatment. Resection of a coarctation with end to end anastomosis is illustrated, then followed by roentgenograms and the presentation of the patient three months postoperatively. The anatomy and physiology and the operation are clearly shown. This production shows evidence of advance planning. It is well organized, the color photography is excellent, and it is recommended as a teaching film for medical students; also for surgeons who wish to review the surgery of coarctation of the aorta.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various Centers, Feb., June, and Sept., 1949. *Part II.* April, 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2. Pa. *Part III.* Boston & New York, Autumn. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various Centers, Jan. 21, 1949. Final date for filing application is Oct. 1. *Oral.* Philadelphia, Oct. 30. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 18. *Oral.* Chicago, Oct. 13-15; Philadelphia, Nov. 3-5; San Francisco, date not set. Candidates not taking these special oral examinations will have no opportunity for admission next year. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part I.* Various Centers, Feb. 4, 1949. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 1.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Chicago, Oct. 6. *Written.* Various Centers, January 1949. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPEDIC SURGERY: *Part I.* Various Centers, April & May. Final date for filing application is Dec. 31. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 3-8. New York City, Spring, 1949. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 8-9. Final date for filing application is Oct. 1. Sec., Dr. Robert A. Moore, 307 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. Sec., Dr. Lee F. Hill, 718 Royal Union Bldg., Des Moines, Iowa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: New York City, Dec. 13-15. Final date for filing application is Sept. 15. Sec., Dr. F. J. Braceland, 102-110 2nd Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1949. Final date for filing application is Dec. 1. Sec., Dr. J. S. Rodman 225 S. 15th St., Philadelphia.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30, 1949. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, Nov. 4-5. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic Examination.* Little Rock, Nov. 4. Sec., Dr. C. H. Young, 1413 Main St. Little Rock.

CALIFORNIA: *Oral.* Los Angeles, Nov. 20-21. *Written.* Sacramento, Oct. 18-21. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO: * *Endorsement.* Denver, Oct. 5. Final date for filing application is Sept. 18. Sec.-Treas., Dr. Walter W. King, 831 Republic Bldg., Denver 2.

CONNECTICUT: * *Examination.* Hartford, Nov. 9-10. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic Examination.* Derby, Nov. 9-10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DISTRICT OF COLUMBIA: * *Reciprocity.* Washington, Sept. 13. Sec., Commission on Licensure, Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington, D. C.

GEORGIA: *Examination.* Atlanta, Oct. 12-13. *Endorsement.* Atlanta, Oct. 14. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

ILLINOIS: Chicago, Oct. 5-7. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June 1949. Sec., Board of Medical Registration & Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Des Moines, Dec. 6-8. *Endorsement.* Des Moines, Oct. 4. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Topeka, Dec. 15-16. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 13-15. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

LOUISIANA: *Examination.* New Orleans, Dec. Sec.-Treas., Dr. R. B. Harrison, 1307 Hibernia Bank Bldg., New Orleans 12. *Homeopathic Examination.* Baton Rouge, subject to call. Sec., Dr. F. H. Hardenstein, 715 Pere Marquette Bldg., New Orleans.

MAINE: Portland, Nov. 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, Dec. 14-17. *Endorsement.* At the discretion of the Board. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic Examination.* Baltimore, Dec. 7-8. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, Nov. 16-19. Sec., Board of Registration in Medicine, Dr. G. L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Examination.* Lansing, Oct. 13-15. *Endorsement.* Oct. 12. Sec., Dr. J. E. McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: Minneapolis, Oct. 19-21. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSOURI: St. Louis, Oct. 25-27. Exec. Sec., Mr. John A. Hailey, P.O. Box 4, Jefferson City, Mo.

MONTANA: Helena, Oct. 4-6. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEVADA: Carson City, Nov. 1. Sec., Dr. G. H. Ross, Industrial Bldg., Carson City.

NEW JERSEY: *Examination.* Trenton, Oct. 19-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: *Examination.* Various Centers, Sept. 27-30. Sec., Dr. J. L. Lochner, Jr., 23 South Pearl St., Albany 7.

OHIO: *Examination.* Columbus, Dec. *Endorsement.* Columbus, Oct. 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * *Reciprocity.* Oklahoma City, Oct. 24-25. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Examination.* Portland, Jan. 1949. *Endorsement.* Oct. 15-16. Final date for filing application is Oct. 1. Exec. Sec., Mr. Howard I. Babbitt, 608 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia, Jan., 1949. Act. Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, Sept. 7-11. Sec., Mr. Luis Curto Coll, 22 Parada, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, Oct. 7-8. Chief, Div. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Endorsement.* Oct. 4. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TENNESSEE: * Memphis, Sept. 29-30. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Fort Worth, Nov. 4-6. Sec.-Treas., Dr. M. H. Crabb, 1305 Amicable Bldg., Waco.

UTAH: *Examination.* Salt Lake City, July. *Endorsement.* Oct. 4. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination.* Burlington, Feb. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: *Examination.* Richmond, Dec. 3-4. *Endorsement.* Dec. 2. Sec., Dr. K. D. Graves, 3015 Franklin Road, Roanoke.

WASHINGTON: * Seattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WEST VIRGINIA: Charleston, Oct. 4-6. Comm., Public Health Council, Dr. N. H. Dyer, State Dept. of Health, Charleston.

WISCONSIN: * Madison, Jan. 11-13, 1949. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls, Wis.

WYOMING: *Examination.* Cheyenne, Oct. 4. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination.* Tucson, Sept. 21. Sec., Mr. Francis A. Ray, Univ. of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, Oct. 5. Sec., Mr. L. E. Gebauer, 1602 Donaghey Bldg., Little Rock.

COLORADO: *Examination.* Denver, Sept. 15-16. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 3.

CONNECTICUT: *Examination.* Oct. 9. Exec. Asst., Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 18-19. Sec., Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington, D. C.

FLORIDA: *Examination.* Gainesville, Nov. 6. Final date for filing application is Oct. 25. Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: Des Moines, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor and Detroit, Oct. 8-9. Sec., Miss Eloise LeBeau, 1510 West Allegan St., Lansing.

MINNESOTA: *Examination.* Oct. 5-6. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, Oct. 5-6. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln.

NEW MEXICO: *Examination.* Santa Fe, Sept. 19. Sec., Miss Marguerite Kilkenny, 110 W. Houghton St., Santa Fe.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. Sec., Basic Science Examining Committee, Dr. C. D. Byrne, Univ. of Oregon, Eugene.

SOUTH DAKOTA: *Examination.* Vermillion, Dec. 3-4. Sec., Dr. G. M. Evans, Yankton.

TENNESSEE: *Examination.* Memphis & Nashville, Sept. 20-21. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

WASHINGTON: Seattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WISCONSIN: *Examination.* Madison, Sept. 25. Final date for filing application is Sept. 18. Sec., Prof. W. H. Barter, Scott & Watson Sts., Ripon.

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Medical Economics

GERMAN EXPERIENCE WITH SOCIAL INSURANCE

F. G. Dickinson, Ph.D., Director, Bureau of Medical Economic Research

NOTE: *This summary of an important study of interest to physicians has been prepared without critical comment on the author's materials, data and interpretations; it is merely a summary.*—ED.

Social Security measures in the United States have not yet been tested under adverse economic conditions; Germany has operated state-sponsored welfare programs for over half a century. Dr. Sulzbach [1] reviews the history of German social insurance in order that America may foresee the economic and psychologic problems which she will face in the future.

The concept of compulsory social insurance was introduced in Germany by Chancellor Bismarck in 1881, in order to win over the laboring class by offering a form of government assistance more dignified than relief. Because employers were required to pay a part of the premiums, the programs were enthusiastically received by the workers and grew until the 1932 depression revealed their basic flaws. The several schemes were never integrated into an over-all system; each operated under a different plan and a separate administration. Each, with the exception of unemployment insurance, started from a small beginning and expanded to include additional benefits and wider occupational and income groups.

GERMAN HEALTH INSURANCE

The sickness insurance act, introduced in 1883, was the first of the German compulsory social insurance programs. Autonomous local funds, organized along occupational lines, collected premiums and distributed benefits. Rates were set at 1½ per cent of wages, two thirds to be paid by the insured and one third by the employer. Statutory benefits consisted of free medical care for thirteen weeks and a cash benefit amounting to 50 per cent of the local wage rate paid from the fourth day of illness. Inclusion of additional benefits and rapid expansion of coverage led to the breakdown of the system in the depression. It was not until Hitler came to power that artificial stimulation of the German economy put the program on its feet again.

Cost of Administration.—Cost of administering the German health insurance program is estimated at 9.6 per cent of total expenditure in 1914, and 6.8 per cent in 1925. These figures do not include bookkeeping costs of employers and legal and postal services performed free of charge by the government. Perhaps a more accurate picture is given by the fact that four fund workers were employed for every three insurance doctors.

The Problem of Malingering.—Under German health insurance, the duration of illness increased progressively from 14.1 days per illness in 1885 to 29.3 days per illness in 1932. The latter figure is 70 per cent higher than in the United States. Supervising physicians, appointed to curb abuses, found up to 50 per cent of the persons on sick lists able to work. During the depression, an emergency measure required the payment of a small fee for medical services and prescriptions; insurance claims promptly dropped more than 50 per cent in many companies. The principle of risk sharing, recognized by other health insurance countries, seems to be the only effective way to check malingering.

The Medical Profession Under Health Insurance.—At its outset in Germany, health insurance was not socialized medicine and was not opposed by the medical profession. Prior to 1913, the funds hired a limited number of physicians and the insured had no choice of doctors. Protests by the members of the profession led to an agreement in 1913 providing for contract committees representing physicians and the funds and for free choice of physicians on the fund roster. Payment was on a capitation basis. By 1928, 80 per cent of German doctors were participating in the system and their pay, averaging $2,620 annually, constituted 60 per cent of all medical earnings. The ratio of physicians to insured persons was 1 to 1,350.

The achievements of the German health insurance program are difficult to estimate. Infant mortality and death rates declined no faster in health insurance countries than in countries without such programs. The deficiencies of the system are far more apparent, and are instructive to American social planners. Supervising physicians had to be withdrawn from practice in order to prevent abuses. Malingering made premiums excessively high and reduced production by increasing unnecessary absenteeism. Risk sharing was necessary, but extremely unpopular. The incidence of the premium paid by the employer fell on the worker in the form of lower wages or decreased employment; thus the entire cost of the program was actually borne by the insured.

ACCIDENT INSURANCE

Accident insurance is more widespread than any other form of social insurance. Germany set the pace in 1884, with a system in which occupational associations paid the entire contribution for manual laborers in their fields. Premiums were determined by the size of payrolls and the risks involved in each occupation. Benefits included medical treatment, funeral benefits and survivors' pensions, and pensions for total or partial incapacity. By 1928, sixty-six occupational groups were covered. Expansion of benefits and coverage continued until the depression forced a reduction in employers' contributions. The accident insurance program was continued and strengthened under Hitler, who found, as had Bismarck half a century before, that the German people would willingly exchange their liberty for apparent security.

INVALIDITY AND OLD AGE INSURANCE

The first invalidity and old age insurance measures were passed in Germany in 1889; by 1916, all occupational categories included under the health insurance program were covered. Employer and employee contributed equal sums, with the government adding an amount equal to approximately one half of the cost of benefits. The scheme was administered by the government with no participation by the insured. When the inflation following the first world war wiped out its reserves, the financial basis of the system collapsed and made necessary an emergency reduction of pensions. Since that time, the increasing age of the population has prevented the accumulation of new reserves out of premiums, and the system has been maintained largely by government subsidy.

Germany's old age pensions were too small to support beneficiaries without supplementary sources of income; the same is true of American pensions, although they are somewhat higher. This fact makes it necessary for the majority of pensioners to apply for relief and defeats the prime purpose of old age insurance.

UNEMPLOYMENT INSURANCE

Unemployment insurance was instituted in Germany in 1927, covering all manual, domestic and agricultural workers in low income groups. Administration was by an autonomous body with local, district and national offices. Rates were set at 3½ per cent, with employers and employees contributing equally. Soon after the plan went into effect, the depression caused a sharp curtailment of benefits; thereafter the program was supported by government subsidy and became a system of relief rather than insurance. Failure of the program can be attributed to the fact that unemployment is not an actuarial risk and unemployment insurance cannot, therefore, have a sound financial basis.

American unemployment insurance has not as yet faced the test of an economic decline. However, it stands to reason that a substantial increase in unemployment will quickly eat up the reserves of the system and an extended depression will throw beneficiaries on the relief roles when the insured period has expired.

1. Sulzbach, W.: German Experience with Social Insurance, Studies in Individual and Collective Security, no. 2, National Industrial Conference Board, New York, 1947, 134 pp. Price $1.

CONCLUSION

Two trends are apparent in the history of German social insurance: general expansion of expenditures, benefits and coverage; and increasing use of government subsidy to supplement employer and employee contributions. In 1885, 4.7 million Germans were insured; expenditure for social insurance amounted to 52.2 million marks. By 1931, 23.3 million persons were covered and expenditures had risen to 5,571.7 million marks. While private contributions rose 217 per cent from 1913 to 1930, federal contributions went up 746 per cent, totaling 475.7 million marks in the latter year. In 1929, health insurance took care of an average of 855,000 sick persons a day; 2 million persons were receiving old age and invalidity benefits, and 1,275,000 received unemployment benefits. One German in six—11,189,000 persons—drew part or all of his income from social insurance.

The reasons for this expansion of German social insurance lie more in its value to politicians and bureaucrats than in its accomplishments. Costs of administration were high. The programs restricted the freedom of the worker to spend his money as he pleased. Assessments on the employer were actually shifted to the worker, who was no better off than under private insurance. During and after the depression, when the programs had degenerated into elaborate relief schemes, the insurance myth was maintained. Unfortunately, once the programs had been put into operation, a bureaucracy was built up which had a strong economic interest in the growth of the system. Moreover, the plans were politically popular. Had German social insurance remained on its original modest scale, it would have avoided many of the difficulties which led ultimately to its collapse.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Act: Applicability to Student Nurse.—The plaintiff filed a petition for compensation under the Workmen's Compensation Act for an injury alleged to have been sustained during the course of her employment by the defendant hospital. From a determination of the Workmen's Compensation Bureau's dismissing the petition for lack of jurisdiction, the plaintiff appealed to the Court of Common Pleas of New Jersey, Hudson County.

On Feb. 6, 1939, the petitioner was accepted by the defendant as a candidate to become a nurse. Prior to this acceptance, she had passed an entrance examination and had paid the established fee. For five months she served as a probationer. Thereafter she was formally accepted by the defendant as a student nurse for a period of training which was to last three years, during which time she was to receive no wage or compensation except room, board and incidentals. At the completion of the training course she was to receive a certificate from the hospital and be eligible to take the examination for registered nurses conducted by the state board. The petitioner's duties were as follows: compulsory attendance at chapel at 6:30 a. m., then breakfast and "at 7 o'clock we are given the night report of the night nurses, we are assigned to patients, take temperatures, give bed pans, make beds, give all treatments, such as enemas, give hypodermics, intramuscular injections and medicines." She worked six days or nights a week, was entirely subject to the control and supervision of the head nurse and in return therefore received room and board plus certain items of clothing and various nursing and dietetics books.

The petitioner alleged that she sustained an injury on March 29, 1940, by accident arising out of and in the course of her employment. The defendant, however, denied that the relationship of employer-employee existed between the parties.

It is fundamental, said the court, that as a necessary prerequisite for recovery under the Workmen's Compensation Act, there must exist the relationship of employer-employee. After a careful consideration of the record in this case, continued the court, it is my opinion that the status of a student nurse who renders service to the public and to the defendant hospital for the pecuniary gain of the latter is similar to the old time apprentice. The apprentice renders services to his master in some trade or employment with the primary purpose of learning the trade, business or profession of the master. The apprentice usually receives no remuneration for his services outside of his board and lodging. For services rendered by him, no doubt the master received payment from the public. I am not unmindful of the fact, the court continued, that one of the purposes of the defendant hospital in permitting a student nurse to practice her art on the public is to increase her efficiency. Another material purpose is to derive pecuniary gain for the services performed. The plaintiff entered into an agreement with the hospital whereby she rendered services to the hospital and its patients. Can anyone doubt the value and importance of such services? Indeed, it is to be seriously doubted that a general hospital could function without the services of student nurses. In return, she received instruction, training, food and lodging and incidental equipment.. This constituted her compensation, and she earned it. Accordingly the court held that the employer-employee relationship did exist between the hospital and the student nurse.—*Heget v. Christ Hospital, 58 A. (2d) 615 (New Jersey, 1948).*

Governmental Hospitals: Right of State Hospital Board to Discharge Employees.—The plaintiffs sued for damages for their alleged wrongful and malicious discharge from employment at the state hospital and from a judgment for the defendants appealed to the Supreme Court of Arizona.

The plaintiffs contended that they were wrongfully discharged from their employment by the state hospital board, without just cause or reason, and that such action was taken by the board contriving wickedly, maliciously and wrongfully to injure them in destroying their good name, credit and reputation. The defendants argued that the state hospital board was strictly within its jurisdiction and acting in a quasijudicial capacity in reviewing and determining the cause of the dismissal of the plaintiffs by the superintendent of the hospital and that therefore the board was clothed with immunity from civil liability for any action taken by it in its official capacity, regardless of any allegation of ulterior motive.

It is a general rule of universal application, said the Supreme Court, dating back to the earliest days of the common law, that judges of courts of general jurisdiction are not liable to civil actions for their judicial acts; i. e., the privilege of a judge while engaged in the performance of his judicial function is absolute. This rule of judicial immunity is not restricted in its protection to judges proper, the court continued, but extends also to any other official who performs a judicial function while acting in a quasijudicial capacity. The statutes of Arizona authorize the superintendent of the state hospital board to discharge an employee for cause. An employee so discharged may on request have the cause of his discharge reviewed and determined by the state hospital board. Continuing, the Supreme Court said that for aught that appears in the plaintiffs' complaint the state hospital board was strictly following the procedure prescribed by statute when the action herein complained of was taken which resulted in separating the plaintiffs from the state payroll. Since it was thus acting strictly within its jurisdiction, it was clothed with immunity from civil liability unless the allegation that its action was taken maliciously makes a difference. There is a division of authority in applying the rule of immunity from civil liability, said the Supreme Court, where it is charged that the act of the quasijudicial officer is done maliciously or corruptly, but the majority rule is that where the quasijudicial officer is acting within his jurisdiction he is not civilly liable, even though he acts corruptly or maliciously. His motives are immaterial. The Supreme Court held that the state of Arizona was committed to this majority rule; the judgment of the trial court dismissing the plaintiffs' complaint was therefore affirmed. —*Wilson v. Hirst, 193 P. (2d) 461 (Ariz., 1948).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Archives of Dermatology and Syphilogy, Chicago

57:141-280 (Feb.) 1948

*Microscopic Grading of Cancer and Its Practical Implication. W. F. Edmundson.—p. 141.
Cutaneous Manifestations of Gonococcic Infection: Keratosis Blennorrhagica Treated with Penicillin. J. B. Miale and W. V. Singletary. —p. 151.
Acanthosis Nigricans and Its Association with Cancer. Helen O. Curth. —p. 158.
Role of Liver in Congestive Eczema. F. J. Eichenlaub and R. A. Osbourn.—p. 171.
Relation of Keratosis Seborrheica and Keratosis Senilis to Vitamin A Deficiency. W. B. Dublin and Bernice M. Hazen.—p. 178.
Tuberculosis Miliaris Disseminata Chronica in Negro. S. Irgang. —p. 184.
Lupus Erythematosus Profundus (Kaposi-Irgang): Historical Review and Report of Case. H. L. Arnold Jr.—p. 196.
Urticaria Caused by Heat, Exertion and Excitement: Report on 22 Cases Among American Soldiers in Japan. H. Sigel.—p. 204.
*Epidermal Absorption of Drugs. F. P. Luduena, Jean K. Fellows and R. L. Driver.—p. 210.
Status of Erythema Elevatum Diutinum. F. C. Combes, H. T. Behrman and Rose Superstein.—p. 219.
Cheese Mite Dermatitis Occurring in United States. N. P. Anderson and H. C. Fishman.—p. 227.
Vogt-Koyanagi Syndrome. H. T. Behrman, O. L. Levin and J. Laval. —p. 235.
Lichen Sclerosus et Atrophicus of Vulva. Evelyn G. Wallace and R. Nemland.—p. 240.
Surgical Management of Onychauxis and Onychogryposis. W. A. Swanker.—p. 255.

Microscopic Grading of Cancer.—Edmundson points out that the grading of cancer is based on the fact that among growths there is individuality depending on the type of tissue from which the neoplasm has sprung, the site of growth, the type of its growth and the degree of differentiation and dedifferentiation (anaplasia) of the cells of the tumor. Broders graded malignant tissue as 1 if more than 75 per cent of the cells are differentiated, as 2 if 50 per cent to 75 per cent are differentiated, as 3 if 25 per cent to 50 per cent are differentiated and as 4 if zero to 25 per cent are differentiated (or if 75 per cent to 100 per cent are dedifferentiated; i. e., anaplastic). The putting into practice of this criterion literally, necessitating the actual counting of cells, is impracticable, but the associated cytologic changes and morphologic characteristics of the tissue are more easily seen. Since these are direct results of the cellular activity, they furnish accurate evidences of malignant potentialities. The personal factor plays a large part in this system of grading, and objections have been made on the basis of the danger of personal error. The author evaluates other objections that have been made to the system of grading suggested by Broders and to other systems. He believes that Broder's method is the best basis for classification of malignant tumors. The nomenclature pertaining to squamous cell carcinoma and adenocarcinoma in particular is far from standardized. Many surgeons believe that it is an adequate basis on which to prognosticate or to aid in judging treatment. MacCarty has listed nine hundred and fifty terms applied to neoplastic disease and has suggested a system that would seem to be an improvement over the present lack of system. A summary of MacCarty's proposed system of nomenclature is given.

Epidermal Absorption of Drugs.—Luduena and his associates made experiments designed to test percutaneous absorption of selected drugs on the clipped skin of rabbits, using as a leading vehicle 2-(2-ethoxyethoxy)-ethanol ("carbitol"), which is absorbable and can act as a carrier without damage to the skin, another vehicle being octyl alcohol. Epidermal absorption was demonstrated for the following drugs, according to their typical systemic effects: epinephrine, penicillin and choline esters dissolved in "carbitol" or a mixture of "carbitol" and octyl alcohol. Octyl alcohol mixed with propylene glycol or ethyl alcohol was also effective for promoting the absorption of epinephrine. With the same vehicles, insulin and dihydro-beta-erythroidine were not absorbed epidermally, thus refuting a previous claim made of positive results for insulin. With similar vehicles, large doses of penicillin were not absorbed from human skin. A mixture containing "aerosol OT" (dioctyl sodium sulfosuccinate) damaged the skin. For percutaneous absorption vehicles should be relatively noninjurious, but even under most favorable conditions the dosage of drugs tends to be large and absorption irregular for systemic effects. For superficial (intradermal) penetration some of the successful vehicles reported in this paper might be useful for certain drugs, when such action is desired.

Blood, New York

3:329-470 (April) 1948

Clinical Significance of Cardiac and Respiratory Adjustments in Chronic Anemia. H. L. Blumgart and M. D. Altschule.—p. 329.
*Irreversible Toxic "Inclusion Body" Anemia: Rarely Recognized Syndrome; Clinical and Experimental Studies. M. H. Fertman and C. A. Doan.—p. 349.
Blood Response and Nitrogen Balance Following Liver Extract. R. West. —p. 361.
*Pathogenesis of Anemia in Acute Glomerulonephritis. Estimations of Blood Production and Blood Destruction in Case Receiving Massive Transfusions. C. P. Emerson.—p. 363.
Studies on Destruction of Red Blood Cells. IV. Thermal Injury: Action of Heat in Causing Increased Sphero idicity, Osmotic and Mechanical Fragilities and Hemolysis of Erythrocytes; Observations on Mechanisms of Destruction of Such Erythrocytes in Dogs and in Patient with Fatal Thermal Burn. T. H. Ham; Shu Chu Shen; Eleanor M. Fleming and W. B. Castle.—p. 373.
Mechanism of Transplacental Isoimmunization. P. Levine.—p. 404.
Erythroblastosis Fetalis in Negroid Infants. A. S. Wiener and I. B. Wexler.—p. 414.
Autohemagglutinins and Hemolysins with Hemoglobinuria and Acute Hemolytic Anemia, in Illness Resembling Infectious Mononucleosis. L. B. Ellis, O. J. Wallerman and R. P. Sirton.—p. 419.
Primary Nonfamilial Hemolytic Anemia. J. M. Stickney and F. J. Heck.—p. 431.
Genetic Relation and Clinical Differentiation of Cooley's Anemia and Cooley's Trait. Geneva A. Daland and M. B. Strauss.—p. 438.
Study of Thalassemia Minor in Three Generations of an Italian Family. R. W. Heinle and Margaret Ruth Read.—p. 449.
Prophylaxis of Hookworm Anemia-Deficiency Disease. W. O. Cruz and R. Pimenta de Mello.—p. 457.
Study of Sickling of Young Erythrocytes in Sickle Cell Anemia. Janet Watson.—p. 465.

Irreversible Toxic "Inclusion Body" Anemia.—Fertman and Doan direct attention to a form of anemia that is characterized by peculiar "inclusion bodies" in the circulating red blood cells. They were first reported by Heinz in 1890. They are readily distinguished from Howell-Jolly bodies, siderocytosis and classic reticulocytosis by their characteristic appearance, distribution and staining reactions. They have gone undetected in most routine clinical laboratories probably because they are difficult to demonstrate in the usual Wright-Giemsa stained and mounted blood films. The attention of the authors has been focused on this phenomenon by the discovery in the blood of an elderly physician with an unexplained refractory anemia, which terminated fatally. After the discovery of "inclusion bodies" in the patient's erythrocytes, it was determined that erythrol tetranitrate was the only drug which had been taken for many months prior to and coincident with the development of the anemia, and to which the patient may have acquired an idiosyncrasy. Since this peculiar anemia persisted and continued to progress even several weeks after the presumed toxic agent was discontinued, some permanent irreversible damage must have been suffered by the erythropoietic tissues. Experimental procedures were undertaken. "Bodies" with similar staining characteristics were reproduced in cats with large oral doses of erythrol tetranitrate and other nitrates. These were generally accompanied by a temporary fall in the red cell count, followed by recovery on withdrawal of the drug.

Anemia in Acute Glomerulonephritis.—Emerson calls attention to the frequent occurrence of anemia in Bright's disease and uremia and presents the case of a soldier, aged 27, who was hospitalized early in an initial attack of acute glomerulonephritis with manifestations of arterial hypertension, hematuria, albuminuria and nitrogen retention, and who was under continuous

observation for fifty days. Studies during this period were concerned primarily with the mechanisms responsible for rapidly developing anemia. Hematologic data were obtained before and after massive transfusion therapy. The administration of group 0 whole blood containing incompatible anti-A isoagglutinins in the first series of transfusions failed to improve the anemia but initiated a sustained reticulocyte response. Following this therapy there was evidence of increased blood destruction involving both the recipient's and the normal donor erythrocytes. Data obtained following a second series of transfusions employing plasma-free group 0 red cells, administered during a recovery phase when renal function had improved, indicated that blood destruction had largely abated and that hemopoietic activity was normal. Two factors of undetermined origin are believed to have been implicated in the pathogenesis of anemia in this case: one, the occurrence of abnormally rapid blood destruction, and the other, impairment of blood formation. Both phenomena were associated with the presence of nitrogen retention, despite which, however, a prompt erythropoietic response followed the transfusion of whole blood with quantitative replacement of patient's red cells with donor erythrocytes, suggesting that previous bone marrow inactivity was not attributable to "toxic suppression."

Bulletin of the Los Angeles Neurological Society

13:1-68 (March) 1948

Angiomas of Cranial Vault: Report of Case with Some Remarks as to Their Pathology and Surgical Treatment. C. B. Courville and A. J. Murietta.—p. 1.
Electroencephalographic Findings in Measles Encephalitis. C. Marsh. —p. 15.
Notes on Pathology of Cranial Tumors: 6 Tumors Originating in Marrow of Diploe. C. B. Courville.—p. 19.
Etiology of Multiple Sclerosis: Short Review. H. E. Andren.—p. 42.

Bulletin New York Academy of Medicine, New York

24:209-270 (April) 1948

Psychosomatic Approach in Medical Practice. G. E. Daniels.—p. 209.
Energy Metabolism in Obese Patients. L. H. Newburgh.—p. 227.
*End Results of Thoracolumbar Sympathectomy for Advanced Essential Hypertension. J. W. Hinton.—p. 239.
Morphological Basis for Menstrual Bleeding: Relation of Regression to the Initiation of Bleeding. J. E. Markee.—p. 253.

Thoracolumbar Sympathectomy for Essential Hypertension.—Hinton subjected 455 patients, 183 men and 272 women, with essential hypertension to the two stage thoracolumbar sympathectomy during the period from February 1942 to November 1947. Most of these patients were in the advanced stage of hypertensive disease. The total deaths in and out of the hospital were 74, or a total mortality of 16 per cent. The causes of deaths occurring in the hospital were in the order as follows: cerebral, cardiac and renal, while in the deaths outside the hospital the order was as follows: cardiac, cerebral and renal. One should clearly differentiate, in evaluating the end results, whether there has been surgical intervention in the early or in the advanced stages of hypertensive disease. Of 164 patients followed for one year, 93 had a postoperative diastolic pressure of 110 or lower and 71 a postoperative diastolic pressure of above 110. A somewhat more dramatic response is demonstrated by the impressive number of patients whose postoperative diastolic blood pressure falls sharply after exercise, even when their resting pressure has been at higher levels. Such a drop in pressure may well be the result of peripheral dilatation in the muscle bed, unopposed, as in the intact organism, by splanchnic constriction, thus averting the customary summated response of blood pressure elevation, as in the routine preoperative response to exercise. That relatively advanced age is not necessarily a contraindication to thoracolumbar sympathectomy was demonstrated by the operative results in a group of 72 patients between the ages of 50 and 59 years. The hospital death rate was lower than that of the group as a whole and the two year follow-up revealed that a large percentage of the patients continued to maintain a satisfactory diastolic level. The author feels that thoracolumbar sympathectomy has a definite place in the treatment of hypertensive vascular disease, but its role in cases of advanced disease is chiefly that of palliation.

California Medicine, San Francisco

68:255-330 (April) 1948

Radicular Pain in Upper Extremity. J. B. Doyle.—p. 255.
Degenerative Lesions of Shoulder as Cause of Pain. A. J. Neufeld. —p. 259.
Psychosomatic Considerations in Gastroenterology. L. M. Morrison. —p. 261.
Breast Cancer in Mice. M. B. Shimkin.—p. 264.
What Are Basic Needs for Public Health in California? D. M. Bissell. —p. 270.
Psychogenic Rheumatism: Musculoskeletal Expression of Psychoneurosis. E. W. Boland.—p. 273.
Section on General Practice. Its Problems, Its Goals, Its Responsibilities. E. A. Royston.—p. 280.
Diverticulosis and Diverticulitis of Colon. Study of 100 Cases. R. W. Quinn.—p. 283.
Surgical Treatment of Horseshoe Kidney. F. Farman.—p. 286.
Relation of Private Physician to Cancer Control Program. L. C. Kinsey. —p. 288.

Canadian Medical Association Journal, Montreal

58:317-426 (April) 1948

Diffuse Collagen Diseases: Morphological Correlation. G. L. Duff. —p. 317.
The Person with Ulcerative Colitis. W. D. Ross.—p. 326.
Adrenal Medullary Pheochromocytoma. C. W. Holland and S. C. Strickland.—p. 330.
Compound Fractures. A. W. M. White.—p. 334.
Radiologic Aspects of Peptic Ulcer. A. C. Singleton.—p. 338.
Comparative Study of Continuous Spinal and Cyclopropane with Curare. Dorothea M. Wardrop.—p. 343.
*Diagnosis of Tuberculosis in Presence of Silicosis. J. H. Lee.—p. 349.
Hemoglobin Levels at Different Ages. L. B. Pett and G. F. Ogilvie. —p. 353.
Uncomplicated Duodenal Ulcer (Physiology and Etiology). D. MacDonald —p. 356.
Vertical Deviations. J. McGillivray.—p. 361.
Femoral Hernia Following Inguinal Herniorrhaphy. L. B. Fratkin. —p. 365.
Mikulicz's Disease. T. G. Heatin and E. H. Shannon.—p. 368.
Mesothelioma of Pleura. Jr. H. Campbell and D. W. Penner.—p. 371.
Relationship of Urethral Caruncle to Carcinoma of Urethra. M. Ratner and C. Schneiderman.—p. 373.
Study of 130 Cases of Pneumonia. C. B. Rich.—p. 376.

Diagnosis of Tuberculosis in Presence of Silicosis.—Lee investigated 100 patients with silicosis for the presence of tuberculosis. A complicating active tuberculous condition must be suspected if cough is becoming increasingly productive or if hemoptysis, pain or loss of weight is present. Limited chest expansion on one side, rales and elevated temperature are suspicious signs. Radiologic changes suggestive of a tuberculous process include coalescing shadows, especially if unilateral or increasing in extent, large hilus glands, cavitation or displaced trachea. The absence of a cutaneous reaction to a 10 mg. dose of old tuberculin probably rules out tuberculosis unless the patient is acutely ill. The only definite proof of the existence of a complicating tuberculosis in silicosis is the demonstration of tubercle bacilli.

Connecticut State Medical Journal, Hartford

12:289-400 (April) 1948

*Prefrontal Lobotomy: A Preliminary Report. Jane E. Oltman, Bernard S. Brody and S. Friedman.—p. 302.
*Antacid Therapy for Peptic Ulcer: Use of New Synthetic Resin. M. Kraemer.—p. 305.
Modern Concept of Respiration After R. F. Pitts. I. G. Shaffer.—p. 310.
Double Gall Bladder Demonstrated by Oral Cholecystography. C. C. Verstandig and D. B. Moore.—p. 314.
Periarteritis Nodosa: Case Report. W. MacShepard and K. T. Phillips. —p. 316.
Welfare Medical Care. W. H. Horton.—p. 319.
This is General Practice. W. W. Rieke.—p. 326.

Prefrontal Lobotomy.—Oltman and her associates say that 107 patients have undergone prefrontal lobotomy at the Fairfield State Hospital in Connecticut since May 1946. Most of these patients had chronic mental illness with an extremely unfavorable prognosis. The results of lobotomy were encouraging in that 86 of the patients showed some improvement, 15 remained unimproved, 5 died an the results in 1 could not be evaluated because of physical complication. Thirty per cent of the patients were sufficiently improved so that they would leave the hospital on an indefinite visit. Convulsive seizures represented the most frequent complication, occurring in approximately 10 per cent of the group. Hostile, aggressive, chronically disturbed patients appear to derive the greatest benefit from this operative procedure.

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1948

Synthetic Resin for Antacid Ulcer Therapy.—Kraemer says that in 1938, while seeking an improved antacid, he discussed acid adsorbents with a water purification engineer who had investigated the iron exchange properties of certain synthetic plastic resins. The antacid synthetic resin with which the author is concerned in this report is a phenol formaldehyde condensation product, which is known as "amberlite IR IV" in the chemical trade and which has been given the pharmaceutic trade name "resinat." When this resin was compared with calcium carbonate and with aluminum hydroxide, it was found that its neutralizing power was less than that of calcium carbonate but better than of the aluminum hydroxide suspension. The author discusses the usefulness of this resin in treating peptic ulcer, presenting diets and medication schedules. So far 100 persons with gastric ulcer have been treated with this resin. Eighteen of these patients were hospitalized because they required blood transfusions on account of severe hemorrhage or required surgical treatment. The bleeding patients did rather well with the resin treatment. Of the 82 ambulant patients 76 have been free of symptoms. In all, 85 per cent of the patients have been kept symptom free on the ulcer regimen using resin as the only antacid. None of the patients have had side effects as a result of resin therapy. Particularly noticeable is the lack of complaints regarding constipation and diarrhea and freedom from bloating and gas.

Iowa State Medical Society Journal, Des Moines

38:77-134 (March) 1948

Principal Clinical Features of Patent Ductus Arteriosus and Tetralogy of Fallot. R. L. Parker.—p. 85.
Degenerative Changes of Knee Joint Following Internal Derangement. R. K. Ghormley.—p. 88.
Gallstone Ileus: Report of 5 Cases. W. L. Downing.—p. 95.
Review of Meningitis Cases Seen in Raymond Blank Memorial Hospital During Years 1945 and 1946. C. L. Burr and J. M. Standefer. —p. 100.
Improved Technic of Sternal Puncture. R. F. Birge.—p. 105.

38:135-180 (April) 1948

Comments on College of Medicine. C. Jacobsen.—p. 136.
Postgraduate Medical Education at the State University of Iowa College of Medicine. T. L. Catz.—p. 140.
State University of Iowa Hospitals: Continuing Contribution to Health of People. G. Hartman.—p. 155.

Journal of Bone and Joint Surgery, Boston

30-A:263-540 (April) 1948. **Partial Index**

Painful Shoulder: Observations on Role of Tendon of Long Head of Biceps Brachii in Its Causation. H. H. Hitchcock and C. O. Bechtol. —p. 263.
Congenital Pseudarthrosis: Follow-up Study After Massive Bone Grafting. H. B. Boyd and K. W. Fox.—p. 274.
Peritendinous Fibrosis of Dorsum of Hand. R. E. Van DeMark, J. D. Kourky and F. J. Fischer.—p. 284.
Pseudarthrosis in Lumbosacral Spine. M. Cleveland, D. M. Bosworth and F. R. Thompson.—p. 302.
Cartilaginous Cup Arthroplasty in Ununited Fractures of Neck of Femur. J. R. Moore.—p. 313.
Management of Chronic Osteomyelitis Secondary to Compound Fractures. F. C. Reynolds and F. Zaepfel.—p. 331.
*Surgical Procedure for Lymphedema of Extremities: A Follow-up Report. H. B. Macey.—p. 339.
Fractures of Lower End of Humerus in Children. D. P. McDonnell and J. C. Wilson.—p. 347.
Lateral Skeletal Traction in Treatment of Forearm Fractures. E. H. White and J. M. Stevenson.—p. 374.
Bridging of Bone Defects. A. Gibson and B. Loadman.—p. 381.
*Primary Closure of Compound Fracture Wounds with Immediate Internal Fixation, Immediate Skin Graft, and Compression Dressings. A. G. Davis.—p. 403.
Primary Anterior Congenital Dislocation of Hip. H. R. McCarroll. —p. 416.
Results of Treatment of Irreducible Congenital Dislocation of Hip by Arthrolysis. C. J. Frankel.—p. 422.
Dislocation of Pisiform. E. W. Immermann.—p. 489.
Compression of Spinal Cord Due to Direct Extension From Tuberculous Pulmonary Abscess. J. R. Norcross.—p. 492.
Morton's Metatarsalgia. H. Winkler, J. B. Feltner and P. Kimmelstiel. —p. 496.

Surgical Procedure for Lymphedema of the Extremities.—Macey points out that many cases of lymphedema progress to the point of disability as a result of the development of recurrent cellulitis and lymphangiitis, or the enlargement of the extremity to elephantine proportions, or a combination of both. He reviews the history of operative procedures for the treatment of disabling lymphedema and describes the one first reported from the Mayo Clinic in 1940. The extremity should be elevated before the operation for two days and drained of most of the lymphedematous fluid. If cellulitis is present, penicillin should be used two to three days preoperatively and continued postoperatively until the second procedure of the operation is completed. Diagrams accompanying the description of the surgical technic show (1) the cutaneous incision of the leg and (2) the subcutaneous dissection of the diseased tissue and the application of split skin grafts over the muscle sheaths and peritendinous structures. Of the 7 patients whose cases are reviewed 5 have had excision of all of the lymphedematous tissue below the knee, and 1 patient has had only the first stage procedure on the medial aspect of the leg. One patient had lymphedema of the upper extremity and has had complete excision of the diseased tissue below the elbow, combined with skin grafting. In this instance of excision and skin grafting of the upper extremity, the result was excellent. Of the 6 patients in whom the lower extremity has been treated, 4 have had excellent results. In 1 of the 2 remaining patients, superficial ulceration in the graft developed, but the patient has been active and the postoperative decrease in the size of the extremity has been maintained. In the remaining case a long follow-up was not obtainable but at the end of one year the skin grafts were in good condition and the elephantine proportions of the extremity had been relieved. The author feels that recurrent cellulitis associated with chronic lymphedema is best treated by excision of the disease-bearing area and by skin grafting.

Primary Closure of Compound Fracture Wounds.—This report by Davis is based on 150 consecutive cases of compound fracture. Twenty-eight patients were treated during the years when neither sulfonamide drugs nor penicillin were available. In the next four years 83 patients were treated with sulfonamide drugs. In the last two years 39 patients were treated parenterally with penicillin, and in addition a sulfonamide compound was dusted into the wound. During the last five years a blood bank has facilitated the generous use of transfusions, and a diet high in protein has been prescribed. It is sometimes impossible and frequently inadvisable to do combined immediate treatment of shock, debridement, internal fixation and closure. For this reason different approaches, depending on the immediate requirements of the individual patients, are outlined in 7 case reports. One hundred and thirty-one, or 87 per cent, of the wounds healed by first intention. About midway in the series it became apparent that the most frequent cause of failure of healing by first intention was the attempt to preserve questionable skin. It is now realized that questionable skin edges jeopardize the result long after the deep tissues have healed. When adequacy of the circulation in a skin flap is doubtful, the tourniquet is removed; if vitality of the flap is not demonstrated, the flap is resected. When longitudinal flaps can be mobilized and drawn together to cover the denuded area, this is done in preference to placing a split graft over the defect. Frequently it is possible to bring the wound edges together without tension by undermining them and using relaxation sutures of stainless steel wire. The results of the described treatment have been superior to those obtained by previous methods. Improved results are attributed, first, to the compression dressing; second, to immediate coverage of the surface defect with skin or a split skin graft, and, third, to immediate or delayed internal hairline reduction, with metallic fixation. The hazard of primary suture is greatly reduced by penicillin and whole blood.

Journal of Immunology, Baltimore

59:337-422 (April) 1948

Toxic and Antigenic Properties of Fractions Prepared from Complete Antigen of Shigella Dysenteria. C. Tal and L. Olitzki.—p. 337.
Studies in Dysentery Vaccination: I. Passive Mouse Protection Test. M. L. Cooper and Helen M. Keller.—p. 349.
Studies in Dysentery Vaccination: II. Humoral Antibody Content of Sera from Children Convalescent from Dysentery. M. L. Cooper and Helen M. Keller.—p. 357.
Studies in Dysentery Vaccination: III. Immunity in Mice Injected with Vaccines of Shigella. M. L. Cooper and Helen M. Keller.—p. 361.
Reactions to Concentrated Influenza Virus Vaccines. J. E. Salk.—p. 369.
Studies with Antibiotic-Producing Strains of Escherichia Coli. S. P. Halbert and H. J. Magnuson.—p. 397.

Journal of Lab. and Clinical Medicine, St. Louis

33:397-520 (April) 1948. Partial Index

*Study of Response of Bacterial Populations to Action of Penicillin: Quantitative Determination of Its Effect on Organisms. Sophie Spicer and Diana Blitz.—p. 417.
Effect of Cold Pressor Test on Glomerular Filtration and Effective Renal Plasma Flow. P. J. Talso, A. P. Crosley Jr. and R. W. Clarke. —p. 430.
*Relation Between Structural and Functional Alterations of Liver. M. Franklin, H. Popper, F. Steigmann and D. D. Kozoll.—p. 435.
Importance of Rate of Dye Removal in Bromsulfalein Test of Liver Function. C. Moses, Frances H. Critchfield and T. B. Thomas. —p. 448.
Effect of Oral Administration of Casein Hydrolysate on Total Circulating Plasma Proteins of Man. B. F. Chow and Shirley De Biase.—p. 453.
Method for Determination of Plasma Catalase and Values Obtained in Normal Adults. R. S. Dille and C. H. Watkins.—p. 480.
Effect of Various Lethal Procedures and Thermal Injury on Capillaries. M. Prinzmetal, H. E. Kruger and H. C. Bergman.—p. 497.
Mechanism of Delayed Death Following Thermal Trauma. H. C. Bergman, H. E. Kruger and M. Prinzmetal.—p. 506.

Response of Bacterial Populations to Penicillin.—Experiments reported by Spicer and Blitz show that penicillin is capable of destroying susceptible bacteria by lysis or otherwise under normal cultural conditions in amounts possible to maintain in the body of the patient. The destructive action of penicillin on sensitive bacterial strains is not complete. A residuum of viable organisms always remains, which is capable of withstanding the destructive action of the antibiotic but is inhibited from multiplying in its presence. Large and small amounts of the drug have the same inhibitory effect on these remaining organisms. The findings suggest that bacterial cultures do not constitute a homogeneous population but that individual members may possess different characteristics as to the manner of reaction under the influence of the antibiotic. Success of penicillin therapy depends directly on the number of residual organisms left viable after the initial treatment. The small numbers of residual viable organisms in strains of Pneumococcus, hemolytic Streptococcus, and some strains of Staphylococcus, as shown by tests, may account for the dramatic results so often obtained with penicillin when used in the treatment of acute infections caused by these organisms. On the other hand, the large numbers of viable organisms found of the Streptococcus viridans strain may account for the protracted treatment with penicillin necessary in cases of subacute bacterial endocarditis in which Str. viridans is the most frequent etiologic agent.

Structural and Functional Alterations of Liver.—The histologic picture of the liver as seen in biopsy specimens obtained by aspiration or laparotomy from 130 patients with various types of hepatic disease, was compared by Franklin and his co-workers with tests of hepatic function performed at the time of biopsy. Thirty-five of these patients were repeatedly studied. The incidence of diffuse damage to hepatic cells, focal necrosis, regeneration, distorted reconstruction, periportal activity, fatty metamorphosis, and mobilization of Kupffer cells was compared statistically with the results of each of different hepatic function tests. A significant correlation was found between diffuse damage to hepatic cells and albumin/globulin ratio, cephalin-cholesterol flocculation, thymol turbidity, and retention of sulfobromophthalein sodium; a lesser degree with highly elevated serum bilirubin, reduced plasma vitamin A, increased prothrombin time, and slightly elevated alkaline phosphatase. Correlations were not elicited between parenchymal damage and total serum protein, total cholesterol, cholesterol-ester ratio, urinary urobilinogen, stool urobilinogen, alkaline phosphatase in general (and markedly elevated alkaline phosphatase specifically), nonprotein nitrogen or sedimentation rate. Focal necrosis, in contrast to diffuse damage to hepatic cells, was not associated with significant changes in hepatic function. The same was found with fatty metamorphosis. Regeneration showed a correlation with increased thymol turbidity. Distorted reconstruction of the lobular pattern (as seen in cirrhosis) was related to cephalin-cholesterol flocculation, thymol turbidity and elevation of sedimentation rate. Kupffer cell activity appeared related to elevated serum bilirubin and pathologic albumin/globulin ratio.

Journal of Nervous and Mental Disease, New York

107:207-312 (March) 1948

Cerebral Schistosomiasis: Report of 1 Proven and 2 Presumptive Cases. R. F. Perkins and A. Uihlein.—p. 207.
Significance of Abdominal Electroencephalograms Prior to Electroconvulsive Therapy. R. M. Taylor and B. L. Pacella.—p. 220.
Somato-Psychic Factors in Anxiety Neurosis. A. Ferraro.—p. 228.
Role of Psychosis in Amyotrophic Lateral Sclerosis. J. W. Friedlander and B. J. Keeert.—p. 243.
Heredity as Etiologic Factor in Homosexuality. R. A. Darke.—p. 251.
Comparison of Psychodiagnostic Findings of Graphology and Hand Psychology. E. J. Scheimann.—p. 269.
Amelioration of Anxiety Symptoms Accompanying Healing of Peptic Ulcer: A Case Report. D. K. Ziegler.—p. 276.

Journal of Thoracic Surgery, St. Louis

17:143-282 (April) 1948

Surgical Management of Carcinoma of Lower Two-Thirds of Esophagus and Cardiac End of Stomach. J. W. Strieder.—p. 143.
Congenital Esophageal Atresia and Tracheoesophageal Fistula. C. G. Lyon and S. G. Johnson.—p. 162.
Bronchoscopic and Esophagoscopic Cinematography. P. H. Holinger, G. C. Anison and K. C. Johnston.—p. 178.
Esophageal Hiatal Hernias of Short Esophagus Type: Etiologic and Therapeutic Considerations. A. M. Olsen and S. W. Harrington. —p. 189.
*Resection of Coarctation of Aorta with Subclavian-Aortic Anastomosis: Report of Case with Discussion of New Clamp for Aortic Resection and Anastomosis. H. H. Bradshaw, J. F. O'Neill and Felda Hightower.—p. 210.
*Aortic-Pulmonary Anastomosis For Pulmonary Stenosis. W. J. Potts. —p. 223.
Study of Variations of Bronchopulmonary Segments of Right Upper Lobe. J. G. Scannell and E. A. Boyden.—p. 232.
Collateral Ventilation. P. R. Baarsma and M. N. J. Dirken.—p. 238.
Collateral Ventilation in Man. P. R. Baarsma, M. N. J. Dirken and E. Huizinga.—p. 252.
Studies on Experimental Phosgene Poisoning: II. Pulmonary Artery Pressure in Phosgene-Poisoned Cats. Mary H. Gibbon, H. D. Bruner, R. D. Boche and J. S. Lockwood.—p. 264.
Localization of Pulmonary Cavities by Modified Roentgenographic Technic. J. Gordon.—p. 274.

Resection of Coarctation of Aorta.—Bradshaw and his co-workers performed resection of aortic coarctation with subclavian aortic anastomosis on a boy aged 16. There was no suggestion after operation of any paralysis in the legs or left arm. Death from pulmonary edema and atelectasis ensued twenty-six hours after intervention. Necropsy revealed that the anastomotic side was partly obstructed by a thrombus. Long intestinal clamps were used to occlude the vessel ends while this anastomosis was being completed, and it was difficult to keep the cut ends of the vessels immobile in accurate end to end approximation. The fine sutures being used broke with annoying frequency. An attempt was made to design a clamp which would firmly grasp the aortic wall between parallel bars without crushing, and which would permit the vessel ends to be accurately approximated to each other and immobilized. Such a clamp was made by the Department of Physiology, Jefferson Medical College, Pa.; the instrument consists of two clamps having parallel jaws, the pressure on the jaws being accurately adjustable by means of a knurled nut; an octagonal rod can be inserted into square holes in each clamp so that it holds them in constant alinement with each other and permits them to be moved to or from each other. A handle can be attached to either end of the bar; this handle can be moved through a wide range with respect to the bar and locked in any position desired. When in use the clamps can be removed from the bar or left on it and placed transversely across the aorta one above and one below the segment to be resected. The jaws can be closed to any desired pressure by turning the knurled nut and the aorta can thus be occluded. By placing the aorta in each clamp equidistant from the tips of the clamp, the aortic ends will be brought in accurate end to end position when the clamps are joined by the bar and approximated. This instrument was used experimentally on 15 dogs. The aorta was approached in each animal through the left side of the chest, and segments of aorta varying in length from 4 to 12 mm. were excised.

Aortic-Pulmonary Anastomosis for Pulmonary Stenosis.—Potts performed aortic-pulmonary anastomosis on 29 children between the ages of 4 months and 12 years, 26 of whom had pulmonary stenosis (tetralogy of Fallot) and 3 had triscupid atresia. There have been 4 deaths, or a mortality of 13.8 per

cent. Twenty-four of the 25 who survived the operation were definitely improved; cyanosis was largely relieved and the patients are living fairly normal lives. One surviver, a 4 month old child, was improved, but cyanosis was still present during crying. Postoperative complications have not been troublesome. In performing the anastomosis a clamp was used which encircles the aorta and pinches off a small lip of it to which a pulmonary artery can be anastomosed. At the same time the clamp allows plenty of blood to continue to flow through the partially constricted aorta. This technic, worked out in the experimental laboratories of Northwestern University Medical School, was slightly modified: The pulmonary artery is not tied to the anterior lip of the clamp only; instead, one end of the ligature is carried through the posterior lip of the clamp first and then through the anterior. The other end of the ligature is threaded through the same lips in the opposite direction. This brings the pulmonary artery to the aorta in better position for anastomosis. Microscopic study of sections cut from the walls of the anastomotic channels produced in dogs indicates that it is unnecessary in aortic-pulmonary anastomosis to appose the vessels intima to intima. Although intima to intima suture in general is preferable, the author does not believe that it makes any difference in this operation in which the differential in pressures is so great. While the most suitable age for operation is probably between 3 and 7 years, successful anastomoses were performed on 2 children below 1 year of age.

Journal of Urology, Baltimore

59:501-772 (April) 1948. Partial Index

*Decapsulation of Kidney for Anuria Due to Sulfathiazole. I. J. Shapiro. —p. 538.
Massive Spontaneous Hemorrhage Into and Around Parenchymal Lesions of Kidney. L. Herman.—p. 544.
Malignant Adenoma of Kidney. R. Pearse.—p. 553.
Extensive Metastasizing Hypernephroma Associated with Massive Bilateral Adenoma of Adrenal. J. A. Taylor.—p. 557.
Spontaneous Disappearance of Pulmonary Metastases After Nephrectomy for Hypernephroma. Four Year Follow-Up. L. T. Mann.—p. 564.
Bilateral Embryonal Adenomyosarcoma of Kidney (Wilms Tumor). M. F. Campbell.—p. 567.
Mixed Tumor of Kidney Lipo-Myo-Hemangioma. N. J. Heckel and G. D. Penick.—p. 572.
*Detection of Cancer Cells in Urine: Clinical Appraisal of Papanicolaou Method. C. J. Schmidlapp II and V. F. Marshall.—p. 599.
Experiences with Stained Smears of Cells Exfoliated in Urine in Diagnosis of Cancer in Genito-Urinary Tract: Preliminary Report. R. Chute and D. W. Williams.—p. 604.
Urethral Stricture: Pathologic Study. D. E. Beard and W. E. Goodyear.—p. 619.
Peyronie's Disease and Its Treatment with Radium. R. E. Fricke and J. H. Varney.—p. 627.
Sclerosing Lipogranuloma of Testicular Adnexae. N. B. Powell and Elizabeth B. Powell.—p. 631.
Genital Self-Mutilations by Mental Patients. L. M. Beilin and J. Grunenberg.—p. 635.
Persistent Cloaca in Five Year Old Boy. W. J. Baker and J. L. Wilkey. —p. 642.
Renal Complications of Hyperparathyroidism. E. Burns and C. M. Whitehead.—p. 664.
Renal Tuberculosis with Special Reference to Cases of Long Standing and Those Treated with Streptomycin. N. F. Ockerblad and R. P. Wellmer.—p. 674.
Use of Estrogens in Treatment of Bladder Tumors. R. Lich Jr. and O. Grant.—p. 682.
Suprapubic Suction Vesical Drainage: New Appliance. F. J. Pyle and R. P. Henderson.—p. 687.
*Persistent Cloaca in Female: Report of 2 Cases Corrected by Operation. O. S. Lowsley.—p. 692.

Decapsulation of Kidney for Anuria.—Shapiro describes 2 cases in which anuria occurred after the administration of sulfathiazole and in which the probable mechanism was the toxic action of the drug on the renal tubules. Bilateral decapsulation was carried out in both patients with prompt cessation of the anuria and ultimate complete recovery. Early decapsulation in similar cases is urged because of the danger that irreversible renal changes may occur if the anuria persists too long.

Cancer Cells in Urine.—Schmidlapp and Marshall review observations on 333 cases in which the urine sediment was studied by the Papanicolaou method for the detection of exfoliated cancer cells. The group comprised not only patients with genitourinary neoplasms, but also many patients with nonneoplastic urologic diseases. The results have been better than expected. Falsely positive reports have been few. A suspicious smear report from the laboratory means cancer nearly half the time, and therefore dictates more study by the usual urologic means as well as by this method. A negative laboratory report decreases the possibility that cancer of the urinary tract is present but does not reliably rule it out. The method as now applied is of little value in the detection of benign tumors and is of greatest value for cancer of the bladder (but not benign papilloma). It is advisable to examine more than one specimen. The authors caution against clinical utilization of the results of one who is just beginning to use this method until a fairly large series has been tested against the usual data, especially biopsy. It is not intended that this method should supplant or exclude recognized methods but rather that it may provide another tool for the detection and study of urinary cancer.

Persistent Cloaca in the Female.—Towsley reports the histories of 2 girls, aged 9 and 7 respectively, who underwent an operation for persistent cloaca. The rarity of this condition is indicated by the fact that a search of the literature revealed only 4 cases. A child thus afflicted is completely ostracized, and the psychologic reaction is so intense that the condition should be corrected before the child reaches school age. The creation of a continent anus was accomplished in both of these cases. Even though a sphincteric muscle cannot be identified, a continent anus may be made by carefully separating the muscle fibers of the perineal floor and fixing the anal wall to the skin of the perineum. The physical condition of these 2 patients showed rapid and great improvement. They gained weight and strength. The "hangdog" expression left them and they assumed the appearance and behavior of normal girls.

Minnesota Medicine, St. Paul

31:361-444 (April) 1948

Rectalgia Associated with Intestinal Diseases: Symptomatic Treatment. J. A. Bargen.—p. 361.
Proctology and General Practitioner. W. C. Bernstein.—p. 363.
Diverticulitis of Colon. W. G. Sauer.—p. 365.
Hemostatic and Absorbable Dressings in Anorectal Surgery. J. K. Anderson.—p. 369.
Serologic Observation in Toxemias of Pregnancy. R. T. La Vake. —p. 372.
Three Months in a State Mental Hospital. A. T. Laird.—p. 376.

Nebraska State Medical Journal, Lincoln

33:113-152 (April) 1948

Despecialization of Psychiatry. F. G. Ebaugh.—p. 115.
Plastic Repair of Major Cutaneous Defects. C. W. McLaughlin Jr. —p. 120.
Rheumatic Fever. R. M. Allen and B. J. Lamb.—p. 124.

New York State Journal of Medicine, New York

48:673-816 (April 1) 1948

One-Stage Suprapubic Prostatectomy with Primary Closure of Bladder. W. C. Eikner.—p. 793.
Schistosomiasis. W. G. Hayward.—p. 796.
Transurethral Surgery in Patients Past Eighty Years of Age. W. A. Milner.—p. 799.
Occupational Disease—Insurance Viewpoint. H. D. Sayer.—p. 801.

New England Journal of Medicine, Boston

238:493-544 (April 15) 1948

Orthopedic Appliances in Rehabilitation of Patients with Spinal Cord Injuries. D. S. Bickers.—p. 545.
*Ulceroglandular Tularemia Treated with Streptomycin: Report of 2 Cases. R. E. Lesser and S. Miller.—p. 554.
Effect of Surgical Operations on Bromsulfalein Retention Test. H. J. Tagnon, G. F. Robbins and Mary P. Nichols.—p. 556.
Problem of Sulfonamide Resistant Hemolytic Streptococci. T. L. Hartman and L. Weinstein.—p. 560.
Role of Pleuropneumonia Like Organisms in Genitourinary and Joint Diseases. L. Dienes, Marian W. Ropes, W. E. Smith and others. —p. 563.
Right-Sided Aorta. Persistent Truncus Arteriosus. Patent Interventricular Septum. Persistent Fifth Aortic Arch on Left.—p. 567.
Metastatic Renal Cell Carcinoma.—p. 571.

Ulceroglandular Tularemia Treated with Streptomycin.—Lesser and Miller report use of streptomycin in treatment of 2 patients with tularemia. The first patient, a man, aged 39, involved no particular problem once the diagnosis had been established. He was given streptomycin in daily doses of 3 Gm. for seven days. The response to this treatment was excellent. Case 2 presented a more complicated problem. Although the

clinical response to streptomycin was definite, the subsequent course of the disease indicates probable inadequacy of dosage initially. It may also indicate decreased effectiveness of treatment when a delay occurs between the initial phase of the disease and the institution of therapy. Evidence for relapse as manifested by serologic and clinical changes may be correlated with the retention of living bacteria within the recovered patient. The inability of streptomycin to effect lasting remission in case 2 was probably due not only to this fact but also to development of resistance by the organism to the antibiotic agent. The initial amount of streptomycin used may be considered inadequate in the light of current knowledge.

North Carolina Medical Journal, Winston-Salem

9:173-232 (April) 1948

Hormones in Urology. R. M. Nesbit and J. Lapides.—p. 173.
*Clinical Manifestations of Glioblastoma Multiforme. Review of Fifty Cases. F. H. Hesser.—p. 179.
Primary Cancer of Lung. H. H. Bradshaw.—p. 186.
Better Health—Today and Tomorrow—Through Medicine. W. C. Davison.—p. 189.
X-Ray Examination in Rupture of Spleen. C. L. Gray.—p. 191.
Treatment of Prolonged Labor Due to Uterine Inertia. J. F. Donnelly.—p. 195.
*Primary Staphylococcic Pneumonia. D. P. Boyette.—p. 200.

Clinical Manifestations of Glioblastoma.—Hesser presents the histories of 3 patients with glioblastoma, which demonstrate that unobtrusive but significant clinical features can slip by unnoticed. In the first case the clinical diagnosis was thrombosis of the right posterior cerebral artery associated with congenital aneurysm, with a history of subarachnoid hemorrhage. At necropsy, a large invasive tumor of the glioblastoma group was found deep in the right temporo-occipital lobe. Extensive necrosis, cystic degeneration and hemorrhagic extravasation were evident. In the second case the clinical diagnosis was epidemic encephalitis and possible tumor of the brain, but necropsy revealed a large cystic and necrotic glioblastoma multiforme. The third case resembled the first one in that symptoms of cerebral and subarachnoid hemorrhage were associated with more definite evidence for tumor of the brain. In an effort to analyze the clinical characteristics of these tumors more critically, 50 cases, diagnosed "glioblastoma multiforme" by operative biopsy (40 cases) or at necropsy (10 cases), were reviewed. There were about twice as many men as women. The onset of symptoms was insidious with gradual progression in 25 cases, rapid or apoplectic in 20 and gradual with sudden or episodic aggravation in 5. Stereoscopic roentgenograms of the skull were made preoperatively in 47 patients and demonstrated changes in 13. Electroencephalography was of diagnostic and localizing value in 13 of the 28 cases in which it was done. Pneumoencephalography gave confirmatory diagnostic information preoperatively in every instance in which it was performed. The data presented indicate pitfalls in the differential diagnosis of malignant tumor of the brain from other varieties of intracranial diseases. These include: age and the presence of arteriosclerosis and/or hypertension; ictus suggesting cerebrovascular disease; lack of localizing symptoms or signs; temporary clinical improvement; normal eyegrounds; mental symptoms suggesting toxic, inflammatory or degenerative cerebral disorder, and overemphasis on historic or other data to the exclusion of subsequent clinical developments. Clinical features favoring the diagnosis of glioblastoma multiforme included: short duration of symptoms or episodic aggravation, headache with vomiting, mental disturbance, convulsions or syncope, neurologic signs, changes in cerebrospinal dynamics, abnormal electroencephalogram and roentgen changes. If any doubt in diagnosis exists, it is better to err in the direction of looking for tumor of the brain than to consider sparing the patient the risk of pneumoencephalography. Contraindications to this procedure are few.

Primary Staphylococcic Pneumonia.—Boyette says that between 1936 and 1947 there were 27 cases of primary staphylococcic pneumonia in Watts Hospital, 5 of which were fatal. Complications occurred in 10 of the 27 cases. In the 14 cases treated with penicillin since it was introduced in 1943 there has been only 1 case of empyema and no deaths. Penicillin, intramuscularly, intrapleurally and by inhalation has been the factor responsible for lowering the mortality rate and the incidence of complications. It is to be assumed that with the liberal use of sulfadiazine and penicillin in modern practice many cases of staphylococcic pneumonia are nipped in the bud and therefore go unrecognized. Staphylococcic pneumonia is not dreaded now as it formerly was, but it still demands respect as a virulent disease which is controlled by vigorous therapy.

Public Health Reports, Washington, D. C.

63:425-468 (April 2) 1948

Studies of Patients Discharged from Tuberculosis Sanatoria: I. Method of Collecting Basic Data From Central Record Systems. Agnes W. Brewster and R. C. Fletcher.—p. 427.
Some Economic and Emotional Problems of Tuberculosis Patient and His Family. Sophia Blum.—p. 448.
Absorption of Bacteriostatic Quantities of Fatty Acid From Media and Large Inocula of Tubercle Bacilli. B. D. Davis.—p. 455.

63:469-500 (April 9) 1948

Road Ahead in Public Health. L. A. Scheele.—p. 472.
*Health of Arc Welders In Steel Ship Constructions: A Review. W. C. Dreessen and others.—p. 488.

Health of Arc Welders in Ship Construction.—This report by Dreessen and his associates presents the clinical and environmental findings of a cooperative investigation into the respiratory health hazards of shipyard arc welders who were working with coated electrodes on bare steel or galvanized steel. Physical examinations were made on 4,650 persons including 2,950 men and 1,700 women employed in seven shipyards. About 1 out of every 4 persons examined was a nonwelder, and the medical findings of this group served to control the clinical observations on welders. Some of the conditions noted, which were possibly related to welding exposure, include a respiratory symptom complex (pharyngeitis, rhinitis and conjunctivitis), arc welder's siderosis, cardiovascular hypotonia and rather characteristic occupational stigmas of certain arc welders caused by burns of hot slag or molten metal. These conditions were either infrequent or of a low order of severity. Blood studies failed to reveal serious dyscrasias. Gastrointestinal symptoms were infrequent. There was no indication that welding fume predisposed to pulmonary tuberculosis. In general the concentrations of welding fume and gas observed in the environmental phase of the study were relatively low and the clinical findings were minimal.

South Dakota Journal of Medicine, Sioux Falls

1:91-138 (March) 1948

Metabolic and Degenerative Diseases in Relation to Climate. C. A. Mills.—p. 91.
Herpetic Infections in Infants and Children. J. A. Anderson.—p. 94.
Rural Medical Care and General Practice. D. Slaughter.—p. 104.

Southern Medical Journal, Birmingham, Ala.

41:285-388 (April) 1948. **Partial Index**

Mesothelial Mediastinal Cysts ("Pericardial Cysts"): Differential Diagnosis of Shadows Continuous with Anterior Inferior Mediastinum. G. Cooper Jr., V. W. Archer and J. R. Mapp.—p. 285.
*Boeck's Sarcoid in Children. R. J. Reeves, G. J. Baylin and P. A. Jones.—p. 293.
Observations on Treatment of Detachment of Retina. F. P. Calhoun Jr.—p. 311.
Treatment of Simple Long Oblique or Spiral Fractures of Shaft of Tibia. L. K. Loomis.—p. 317.
*Penicillin in Drops for Prophylaxis Against Ophthalmia Neonatorum: Single Installation Method. H. C. Franklin.—p. 320.
*Effect of Carbamide on Penicillin Therapy. H. C. Sweet, O. P. J. Falk and D. Agar.—p. 326.
Combined Quinine-Plasmochin and Quinine-Pentaquine Treatment of Relapsing Vivax Malaria. C. G. Spicknall and L. L. Terry.—p. 338.
Accidental Generation of Arsine Gas in Industry. C. A. Nau.—p. 341.
Facial Paralysis in Otology. J. B. Farrior.—p. 348.
Glaucoma Following Cataract Extraction. W. C. Owens.—p. 357.
Relation of Vascular Apparatus to Rheumatoid Arthritis. A. D. Wallis.—p. 362.
Use of Dicumarol as Adjunct to Treatment of Congestive Heart Failure: Results in Controlled Series of 61 Cases. G. M. Anderson and E. Hull.—p. 365.
Ten-Year Cures in Carcinoma of Female Breast. L. C. Cohn.—p. 376.
Diagnosis of Hydronephrosis. W. H. Toulson.—p. 379.

Boeck's Sarcoid in Children.—According to Reeves and his associates different organs and tissues are involved in sarcoidosis. The disease has been seen most frequently among Negroes. Of the 13 children analyzed in this series, 9 were Negro and 4 white. The ages of the children varied between 9 and 14 years. The authors feel that the disease may have

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been overlooked in many younger children. After presenting several case histories, the authors stress that disease in children appears the same and runs the same course as in adults, involving in varying degrees the skin, lymph nodes, eyes, bones, lungs and many other tissues. The lesions in mediastinum and lungs tend to clear without demonstrable fibrosis. The usual distribution of the enlarged lymph nodes and the involvement of the nose and eyes aid in the differential diagnosis. The blood studies are often pathognomonic: eosinophilia, monocytosis, increase in the globulin content with a reversal of the albumin-globulin ratio. The disease may be confused with tuberculosis, Hodgkin's disease, sarcoma, leukemia, or the fungous infections. The correct diagnosis is usually reached by skin or lymph node biopsy.

Penicillin for Prophylaxis Against Ophthalmia Neonatorum.—Franklin says that for a five month period penicillin in drops was used for prophylaxis in the eyes of each newborn infant delivered at the John Gaston Hospital, Memphis, Tenn. The mothers of the infants studied were nearly all charity patients, of whom 85.3 per cent belonged to the Negro race. Penicillin was used in the form of the crystalline sodium salt of penicillin. A concentration of 2,500 units per cubic centimeter of sterile isotonic sodium chloride solution was used. A single instillation was given. A total of 1,177 infants was studied in the nursery and in the home during the first two weeks of life. One and one-tenth per cent of the infants exhibited pus in the eyes while in the nursery. This percentage is approximately one half of that observed when a multiple instillation method was used under less favorable conditions and is approximately one sixth the incidence observed in a previously reported series following silver nitrate prophylaxis.

Effect of Caronamide on Penicillin Therapy.—The crystalline compound caronamide, which is 4'-carboxyphenylmethanesulfonamide, is used to check the rapid excretion of penicillin by the kidneys. Sweet and his associates in their studies on the use of caronamide made an effort to establish optimum penicillin-caronamide dosage schedules. They describe observations on reduced penicillin dosage with increased time intervals. Studies were also made to determine whether caronamide would add to the effectiveness of oral penicillin. The toxicity of penicillin was investigated. The authors have given caronamide to 59 patients for an average period of six to seven days, the longest being eighteen days and the shortest two. In 6 instances nausea occurred, but only in 1 instance was it necessary to stop the drug because of the severity of the nausea. In 1 instance a generalized erythematous rash developed, which was caused by penicillin rather than caronamide. Caronamide appears to decrease the renal loss of penicillin, making it possible to increase the time interval between penicillin injections to at least four hours and to decrease the daily amount of penicillin needed by at least one half. Caronamide has shown no evidence of hepatic injury, and only occasionally produces nausea and vomiting. The authors feel that the drug should be withheld in frank renal deficiency. Penicillin ingested orally has been demonstrated to bring about effective therapeutic level when given with caronamide.

Southern Surgeon, Atlanta, Ga.

14:227-286 (April) 1948

Penicillin in Treatment of Intra-Abdominal Infection. J. E. Hamilton and B. Greenspan.—p. 227.
Appendectomy: Technic for Total Excision. C. H. Taylor.—p. 236.
Surgical Aspects of Diverticula of Duodenum. F. M. B. Slater and W. H. Parsons.—p. 240.
Application War Experiences Civilian Chest Casualties. E. B. Hay. —p. 248.
*Familial Sciatica Due to Herniated Disks. J. M. Meredith.—p. 258.
Tumor of Carotid Body. H. C. Dahleen.—p. 264.
Early Carcinoma of Prostate. J. H. Semans.—p. 273.
Cysts of Falciform Ligament. J. S. Brown Jr.—p. 278.

Familial Sciatica Due to Herniated Disks.—Meredith describes a family in which the father and 5 of his 6 children had or have sciatica. Six operations for removal of protruded disks at the fourth or fifth lumbar interspaces or both have been necessary to date in this sciatica-afflicted family. None of the 6 patients had a history of a traumatic episode. All were in the fourth or fifth decade of life when operated on. Degenerative changes seem to predispose to herniation of the nucleus pulposus and such changes may have been the most important etiologic factor of disk protrusion in this family. It is possible that a congenital defect is present in some cases of lumbar protruded disk, especially in those patients in whom there has been no definite traumatic history, as in all 6 of the familial cases herein described.

Tennessee State Medical Assn. Journal, Nashville

41:115-154 (April) 1948

Psychiatry by General Practitioner. W. C. Porter.—p. 115.
Malignant Lesions of Rectum, Rectosigmoid and Sigmoid. D. W. Smith. —p. 119.
Paralysis of Larynx. F. D. Woodward.—p. 128.
Medical Treatment of Duodenal Ulcer. P. B. Bleecker.—p. 131.
Rectovaginal Fistula. W. W. Pyle.—135.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

56:193-252 (April) 1948

Congenital Cystic Disease of Liver. L. Chaffin.—p. 193.
Treatment of Peritonitis: Review of 186 Cases. R. H. Loe.—p. 193.
Gigantic Ovarian Cyst Developing in Thecoma: Problems Encountered in Surgical Management. W. C. Reiner.—p. 205.
Conversion of Otoscope Into Infant Laryngoscope. A. C. Kirchhof and A. Burns.—p. 208.
Studies on Thyrotoxicosis. J. Hertz.—p. 209.
*Propylthiouracil: Its Use in Preoperative Treatment of Severe and Complicated Hyperthyroidism. E. C. Bartels.—p. 226.
*Spinal Anesthesia in More Than Five Thousand Vaginal Deliveries. W. C. Rogers.—p. 236.
Statistical Review of 241 Consecutive Cesarean Sections. T. W. Adams. —p. 243.

Propylthiouracil in Preoperative Treatment of Hyperthyroidism.—Clinical experience with propylthiouracil in the preoperative treatment of 300 patients with moderate to severe hyperthyroidism indicates that it is uniformly effective in reducing the basal metabolic rate when given in the daily dose of 200 mg. for primary hyperthyroidism and 300 mg. for adenomatous goiter with hyperthyroidism. Significant toxic manifestations were observed in 6 of the 300 patients treated. In one case a fever reaction occurred. Five patients had depressive changes in the white blood cells; in one this change was typical agranulocytosis. The occurrence of these reactions indicates that propylthiouracil is not a completely harmless drug and that patients receiving it require careful observation. Lugol's solution (strong iodine solution U. S. P.) is now combined with propylthiouracil in all patients with primary hyperthyroidism. The quick action of Lugol's solution produces a more prompt subjective improvement but tends to cause slight delay in the return of the basal metabolic rate to normal. Patients with primary hyperthyroidism respond with an approximate daily drop of 1 per cent in the basal metabolic rate. No death occurred after thyroidectomy in the 300 patients treated with propylthiouracil.

Spinal Anesthesia in Vaginal Deliveries.—The cases reviewed by Rogers include all patients delivered vaginally from September 1943, when spinal anesthesia was first used for deliveries, to July 1947. The total number of vaginal deliveries occurring in this forty-six month period were 5,837, in 5,067 of which spinal anesthesia was used and in 770 nitrous oxide. From 3 to 10 mg. of tetracaine hydrochloride in 1.5 to 2 per cent dextrose solution is used. This solution makes it relatively easy to control the height of the anesthetic. The average dose used is 6 mg. tetracaine, which will ordinarily produce complete anesthesia for one to two hours. The anesthetic is administered with the patient lying on her left side, the head of the table being elevated 2 or 3 inches (5.1 to 7.6 cm.). There were no maternal or fetal deaths and no neurologic complications. Spinal anesthesia is not an obstetric panacea, but when judiciously used affords a safe means of painless delivery.

West Virginia Medical Journal, Charleston

44:75-96 (April) 1948

Carcinoma of Colon and Rectum. H. C. Myers, A. K. Bush and M. Lea.—p. 75.
Trichobezoar: Report of Case. R. J. Wilkinson and A. Sheade.—p. 79.
Postmortem Cesarean Section Delivery of Twins, with Survival: Case Report. F. H. Dobbs.—p. 80.
Office Treatment of Syphilis with Penicillin. D. V. Hatton.—p. 83.
Renal Anomalies: Case Report. C. K. Pearlman.—p. 84.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

7:1-62 (March) 1948

Heberden's Nodes: Clinical Characteristic of Osteo-Arthritis of Fingers. R. M. Stecher.—p. 1.
Pain in Arm: A Review. H. Lovell Hoffman.—p. 9.

British Journal of Ophthalmology, London

32:129-192 (March) 1948. Partial Index

Further Case of Iridoschisis. A. Loewenstein, J. Foster and S. K. Sledge.—p. 129.
Note on Intra-Vitreous Penicillin. T. S. Kelly.—p. 153.
Complication of Intracapsular Cataract Extraction. F. A. Williamson-Noble.—p. 161.
Attempt to Treat Perforated Eye with Subconjunctival Penicillin. F. R. Neubert.—p. 162.
Use of Anti-Allergic Drugs in Treatment of Phlyctenular Ophthalmia. C. F. Bowes.—p. 163.
Intra-Mural New Vessels in Occluded Retinal Vein: Clinical Description. I. C. Michaelson.—p. 164.
Implant with Bridges for Attachment of Muscles. E. Rosen.—p. 166.
Pathology of Mucous and Salivary Gland Tumors in Lacrimal Gland and Relation to Extra-Orbital Mucous and Salivary Gland Tumors. (Studies on Orbital Tumors). E. Godtfredsen.—p. 171.

British Journal of Urology, London

20:1-56 (March) 1948

Mishaps of Prostatic Resection. R. J. Silverton.—p. 2.
Solitary Cyst of Kidney: Case Report. R. A. Smith.—p. 8.
Epididymectomy: Alternative Technic. A. Miller.—p. 13.
Circumcision of Adult. J. R. Elder.—p. 17.
Primary Carcinoma of Ureter. F. E. Stock and C. Wells.—p. 19.

British Medical Journal, London

1:485-532 (March 13) 1948

Where Are We Going? Medicine in Planned Economy. F. Roberts. —p. 485.
Health of 407 New Students. J. Pemberton.—p. 490.
Recognition of Toxicogenic Bacterial Strains in Vitro. S. D. Elek. —p. 493.
Speransky's Method of Spinal Pumping in Rheumatoid Arthritis: Review of 4 Cases. O. Savage.—p. 496.
Diverticulitis Presenting as Emphysematous Cellulitis of Leg: Clinical Report on 2 Cases. R. L. G. Dawson and R. H. Hardy.—p. 498.
Recurrent Renal Lithiasis. A. D. Wright.—p. 499.

1:533-584 (March 20) 1948

Epilepsy. C. Symonds.—p. 533.
Psycho-Analytic Concept of Origin of Depression. W. C. M. Scott. —p. 538.
Significance of Harrison's Grooves. J. Naish and H. R. E. Wallis. —p. 541.
"Myanesin" as Relaxant in Children. W. H. Armstrong Davison. —p. 544.
Treatment of Gold Dermatitis by BAL. N. R. W. Simpson.—p. 545.
"Amellin" for Diabetes. H. Whittaker.—p. 546.
Pre-Erythrocytic Stage of Human Malaria, Plasmodium Vivax. H. E. Shortt, P. C. C. Garnham, G. Covell and P. G. Shute.—p. 547.

1:585-626 (March 27) 1948

De Formatione Ovi Et Pulli. H. A. Harris.—p. 585.
Environmental Factors Influencing Health and Efficiency in Warships. F. P. Ellis.—p. 587.
*Permanent Homonymous Quadrantanopia After Migraine. W. M. Rich. —p. 592.
*Phlebothrombosis Decubiti and Prevention of Pulmonary Embolism. H. Bailey.—p. 594.
Treatment of Thyrotoxic Heart Disease by Methyl Thiouracil. W. E. Clarke.—p. 597.
Penicillin and Gonorrhea: Analysis of 150 Cases Treated by Single-Injection Method. C. C. R. Downing.—p. 599.

Permanent Quadrantanopia After Migraine.—Rich says that, although it is well known that migraine often is accompanied with visual hallucinations, it is not generally known that it may lead to permanent visual damage. He describes a woman in whom permanent homonymous quadrantanopia developed after twenty years of repeated attacks of idiopathic migraine. According to Peter, perimetry locates ophthalmic migraine in the visual cortex. It is probably due to spasms in the small vessels of the cuneus. Repeated attacks of spasm in the small vessels may result in permanent occlusion of the vessel with softening of the brain tissue, the functional process then becoming organic. A review of the literature revealed only 13 other cases of this type.

Phlebothrombosis and Pulmonary Embolism.—Diagnosis of phlebothrombosis must be considered when the temperature chart shows unexplained repeated slight elevations. The condition is more prone in persons past the meridian of life, and the highest incidence is between the ages of 50 and 60. If the patient has undergone an operation about a week previous to development of the condition, more particularly if there was herniotomy, hysterectomy, resection of the rectum, prostatectomy, cholecystectomy or operation for perforative appendicitis, and if the patient has been nursed with a pillow placed beneath the knees, the clinician's thoughts should turn to the veins of the lower extremities. The whole lower extremities should be inspected in suspected early cases for swelling, fullness of veins and cyanotic tinge. Finger tip pressure should be applied over each saphenous opening, and, with a stroking motion, the finger is run down the course of each femoral vein, seeking a segment of unilateral localized tenderness. Then follow palpation of feet, legs and particularly the popliteal space. Homan's sign should be investigated, and femoral pulses should be compared. If, following a thorough examination, the diagnosis of femoral thrombosis is reasonably assured, removal of clots and interruption of the femoral vein will forestall many pulmonary emboli. In Britain there are few surgeons who have carried out femoral thrombectomy; the operation has received less attention than pulmonary embolectomy. The latter is a heroic measure requiring special facilities, special instruments and special skill. Femoral thrombectomy requires none of these things. Femoral thrombectomy is indicated: (1) when pulmonary embolism has occurred and the patient is yet in a fit condition to withstand operation and (2) when phlebothrombosis decubiti has been diagnosed with some precision. The author describes femoral embolectomy and says that if it should prove fruitless, ligation of the inferior vena cava should be resorted to.

Edinburgh Medical Journal

55:65-128 (Feb.) 1948

Heart Failure of Pulmonary Origin. J. McMichael.—p. 65.
Hydatid Disease. D. M. Douglas.—p. 78.
Studies in Amnesia. W. R. Russell.—p. 92.
Blood Changes in the Aged. Part III. O. Olbrich.—p. 100.

Journal of Endocrinology, London

5:223-258 (Jan.) 1948

Physiologic Activity of Optically Active Isomers of Thyroxine. Rosalind P. Rivers and J. Lerman.—p. 223.
Alloxan Diabetes and Liver Glycogen. E. Tuerkischer and E. Wertheimer.—p. 229.
Adrenalectomy and Replacement Therapy in Lactating Rats. S. J. Folley and A. L. Greenbaum.—p. 236.
Rapid Method for Volumetric and Numerical Estimation of Pancreatic Islets in Mouse. L. E. Mount.—p. 243.
Quantitative Determination of Small Amounts of Pregnanediol in Human Urine. I. F. Sommerville, Nancy Gough and G. F. Marrian.—p. 247.

Journal of Neurol., Neurosurg. & Psychiatry, London

11:1-72 (Feb.) 1948

Cerebellar Abscess: Treatment by Excision with Aid of Antibiotics. J. Pennybacker.—p. 1.
*Observations on Cause and Mechanism of Symptom Production in Sciatica and Low Back Pain. M. A. Falconer, M. McGeorge and A. C. Begg.—p. 13.
*Neuropathologic Aspects of Thrombocytic Acroangiothrombosis: Clinico-Anatomic Study of Generalized Platelet Thrombosis. R. D. Adams, J. Cammermeyer and P. J. Fitzgerald.—p. 27.
Primary Cerebral Hydatid Cysts. G. Phillips.—p. 44.
Clinical Characteristics, Treatment and Rehabilitation of Repatriated Prisoners of War with Neurosis. M. Jones and J. M. Tanner.—p. 53.
Psychologic Symptoms and Physiologic Response to Exercise of Repatriated Prisoners of War with Neurosis. J. M. Tanner and M. Jones. —p. 61.

Symptom Production in Sciatica and Low Back Pain.—Falconer and his associates studied two groups of cases. The first group comprised 100 consecutive patients suffering from disabling sciatica or pain in the lower part of the back, who submitted to operation with a presumptive diagnosis of disk protrusion. The second group consisted of 76 patients with severe sciatica or pain in the lower part of the back, who were admitted initially to medical wards, where they were treated conservatively. Routine myelography performed in patients with sciatica or pain in the lower part of the back, admitted to

the hospital because of severity or intractability of symptoms, has indicated that intraspinal lumbar disk protrusions are present in almost all cases, whether the patient recovers from symptoms spontaneously or only after operation. Myelography, when repeated after spontaneous recovery from symptoms has occurred, usually shows that the intraspinal disk prolapse persists apparently unchanged. A number of further clinical observations are reported, which indicate that pain in the lower part of the back is caused by the disk prolapse alone, presumably through implication of the sinuvertebral nerve of Luschka, and that sciatica occurs only when the disk is prolapsed so that it impinges on a nerve root in its extrathecal course at the level of either of the lower two lumbar intervertebral disks. Secondary changes, probably of intraneural edema, appear within the affected nerve root, which contribute to the production of symptoms by pulling the nerve root tight against the prolapsed disk, thereby causing angulating and other strains within it. These strains, in their turn, excite afferent impulses within the nerve, which on reaching the sensorium produce a sensation of pain referable to the peripheral distribution of the affected nerve root. A slight blocking in conductivity through the compressed segment of nerve root accounts for the associated muscular, sensory and reflex disturbances. The spontaneous remission of symptoms, which often occurs in sciatica, can result from a resolution of the neural changes without an associated resolution of the disk prolapse. In treating sciatica and pain in the lower part of the back, conservative measures, with application of the principle of rest to the lumbar aspect of the spine, should always be tried in the first instance; they are often successful. Surgical treatment should be considered only when conservative measures fail and disability is appreciable.

Neuropathologic Aspects of Thrombocytic Acroangiothrombosis.—Adams and his co-workers review the neurologic and neuropathologic observations in 4 cases of thrombocytic acroangiothrombosis. This is a rare disease of unknown causation, which begins acutely, runs a rapidly progressive course and usually causes death in a few days or weeks. The leading clinical features were fever, purpura, anemia, thrombopenia and symptoms of cerebral disorder, such as muscular weakness, hemiplegia, convulsions, confusion, stupor and coma. The most important pathologic changes were a striking increase in cellularity of the walls of arterioles and capillaries and thrombi of platelets. These vascular abnormalities were pronounced in the brain of each of the 4 patients and were sometimes associated with multiple small foci of parenchymal necrosis and petechial hemorrhages. The neurologic data in 14 reported cases are summarized. Clinically the disease must be distinguished from idiopathic thrombopenic purpura, disseminated lupus erythematosus, subacute bacterial endocarditis and rickettsial diseases. This usually is possible by taking into consideration the total clinical picture and the laboratory data. The diagnosis of the disease can probably be established by bone marrow biopsy, in which platelet thrombi and vascular hyperplasia can often be seen. The brain lesions are believed to represent a unique picture, unlike any other neurologic type of reaction to disease.

Lancet, London

1:469-504 (March 27) 1948

Treatment of Rheumatoid Arthritis. W. S. Tegner.—p. 469.
Vesicocapsular Prostatectomy. R. O. Ward.—p. 472.
Anti-Histamine Drugs in Asthma. R. B. Hunter.—p. 474.
Gonococcal Meningitis Treated with Penicillin and Sulphamezathine. Report of a Case. B. P. Moore, M. J. G. Lynch, P. C. Reynell and W. H. Donald.—p. 476.
Determination of Hemoglobin: IV. Comparison of Methods for Determining Iron Content and Oxygen Capacity of Blood. E. J. King, M. Gilchrist, I. D. P. Wooton, J. R. P. O'Brien and others.—p. 478.

Proceedings of Royal Society of Medicine, London

41:133-186 (March) 1948. **Partial Index**

Posture in Anaesthesia. J. K. Hasler.—p. 133.
Artificial Respiration. E. A. Pask.—p. 138.
Progress in Treatment of Mastoid Infection and Some if Its Complications. D. Watson.—p. 155.
History of Cholera in Great Britain. E. A. Underwood.—p. 165.

Journal de Médecine de Lyon

29:259-296 (April 20) 1948

Myxedematous Megacolon. P. P. Ravault, M. Planchu and P. Guinet.—p. 259.
Epidemic Hepatitis. M. Girard and P. Fargetton.—p. 269.
*Crystalline Suspensions of Desoxycorticosterone in Treatment of Addisonian Syndromes. P. P. Ravault, M. Pont and A. Pothier.—p.291.

Desoxycorticosterone in Addison's Disease.—Ravault and his co-workers treated 7 patients, 5 men and 2 women, between the ages of 20 and 41, who had Addison's disease, with desoxycorticosterone acetate in crystalline form in aqueous suspension by intramuscular route. Animal experiments on adrenalectomized dogs showed that the duration of the effect of the drug in aqueous suspension was much longer than that of the drug in oil. In the patients the dose of desoxycorticosterone acetate in 2 cc. of water varied from 50 to 150 mg. Satisfactory results suggest that the new method of administration may occupy a place halfway between injection in oil and implantation of pellets. The new method is indicated in mild cases of Addison's disease in which one injection of 50 mg. was effective for three weeks, while one injection of 100 mg. was effective for five to six weeks. Implantation of pellets may be preferred in grave cases of Addison's disease, but the new method of administration may be used temporarily to avoid hospitalization required for the implantation and to determine the need of the drug and its optimum dose. No untoward reactions occurred in those cases in which the dose of one injection was not larger than 100 mg. Mild edema resulted in 1 patient from a dose of 150 mg., but disappeared within a few days.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:605-680 (Feb. 28) 1948. **Partial Index**

*Serum Hepatitis. W. J. Bruins Slot.—p. 608.
*Polytendinobursitis. D. Dorrepaal.—p. 618.
Complications of Asthmatic Attacks. S. Drukker.—p. 622.
Significance of Sugar Content of Blood and Urine in Treatment of Diabetes Mellitus. F. Gerritzen.—p. 625.
Early Diagnosis of Spondylarthritis Ankylopoietica (Bechterew's Disease). J. Goslings.—p. 627.
Splenectomy in 2 Cases of Anemia. A. J. C. Haex.—p. 631.
Rheumatic or Septic Endocarditis. C. A. van Hees.—p. 635.
Infection and Anemia. J. J. De Jong.—p. 641.
Focal Infection. H. C. van Leeuwen.—p. 647.

Serum Hepatitis.—Bruins Slot reports 2 men, aged 55 and 67, respectively, in whom hepatitis developed after repeated injections of plasma. In both of these cases of serum hepatitis, the gastrointestinal disturbances usually developing at the onset were absent. Many observers consider the so-called arsphenamine icterus also as a form of serum hepatitis, which is transmitted by the injection needle. The pathologic anatomy of epidemic hepatitis, serum hepatitis and arsphenamine icterus is identical.

Polytendinobursitis.—Dorrepaal reports several patients who showed signs of tendinitis in various parts of the body often associated with bursitis. The heart remained normal. This entity of polytendinobursitis must be differentiated from rheumatoid arthritis, rheumatic fever and fibrositis. The etiology of polytendinobursitis has not been clarified, but the case histories suggest that loss in general resistance and focal infection might play a part. Treatment consists in protecting the involved part from exertion, providing good food and perhaps additional vitamins and in treating the anemic state that might exist.

Nordisk Medicin, Stockholm

37:199-246 (Jan. 30) 1948. **Partial Index**

Roentgen Diagnosis of Mitral Defect. H. Hemmingson.—p. 199.
*Continued Investigations on Relation of Erythema Nodosum to Tuberculosis. H. J. Ustvedt.—p. 201.
After-Examination of Student Nurses Inoculated with BCG. A. Beskow.—p. 206.
Exudative Pleurisy and Pregnancy. O. Lassen.—p. 215.
Spontaneous Hypoglycemia—Insuloma. L. Thorling.—p. 217.

Relation of Erythema Nodosum to Tuberculosis.—Primary tuberculous infection was certain in 29 per cent of Ustvedt's 200 cases of erythema nodosum; tuberculous etiology was probable in 37 per cent, could almost surely be excluded

in 23 per cent and was improbable in 11 per cent. He concludes that in Norway only about two thirds of the cases of erythema nodosum can be assumed to be connected with primary tuberculous infection. In practice, every case of erythema nodosum should be treated as if due to tuberculosis until other cause is established.

Praxis, Bern

37:259-278 (April 15) 1948. **Partial Index**

Myoneurovascular Glomera; Their Part in Pathogenesis of Post-Traumatic Ascending Pain, Cirsoid Aneurysms and Coccygodynia. J. Veyrassat.—p. 259.
*Histamine Contents of Blood in Patients with Ulcus. A. W. Surkes. —p. 264.
*Analgesic Effect of Calcium in Metastasis of Cancer. J. Körbler. —p. 266.

Histamine in Blood of Patients with Ulcus.—Surkes determined the histamine content in the whole blood of 40 patients, 14 women and 26 men between the ages of 23 and 73, who had peptic ulcers demonstrated on roentgenologic examination. Thirty-two of them presented ulceration of the stomach, and 8 of the duodenum. The disease was chronic in all cases. The quantitative estimation of histamine in the blood was carried out by using Code's modification of the Barsoum-Gaddum method. In 28 patients the histamine values were normal; in 8 patients they were increased slightly, and in 4 patients there was a pronounced increase. The histamine contents were normal in 15 of 19 patients in whom the niche had disappeared and there was a mild increase in the remaining 4 patients. In 4 patients on whom gastrectomy was performed for ulcer of the stomach, the histamine in the blood was determined before and immediately after the surgical intervention. These patients presented a tendency to reduced histamine values after the intervention.

Calcium in Metastasis of Cancer.—Körbler treated 7 patients, 5 women between the ages of 44 and 75, who had cancer of the breast with bone metastases in the legs or ribs, 1 woman aged 51 with adenocarcinoma of the scalp and metastases in the legs and 1 man aged 57 who had cancer of the floor of the mouth with metastasis in the lower jaw, by intramuscular administration of a 10 per cent solution of calciumgluconogalactoglucinate ("calcium Sandoz"). Ten cubic centimeters of the solution was injected daily on ten and twenty consecutive days. Pain caused by the metastases was relieved in all cases; this analgesic effect was only temporary in some of the patients but permanent in others. It was obtained with the first injection and in some cases after several injections only. Results were best in metastases in the region of the vertebral column after cancer of the breast and particularly during the first phase of such metastases in which pain may be severe in the absence of any roentgenologic manifestations. An additional, eighth, case is reported in a woman aged 45 who had severe pain associated with metastases of pelvic bones after mastectomy for cancer. She was treated with calcium compound for several weeks. The pain was relieved and calcareous deposits were demonstrated on roentgenologic examination. Although these deposits cannot explain the analgesic effect of the calcium, it is suggested that it might be possible to make these deposits radioactive by the action of neutrons and thus to produce a source of gamma rays within the metastasis.

Presse Médicale, Paris

56:149-153 (Feb. 28) 1948

*Use of Male Hormones in Treatment of Cancer of Breast in Women. A. Sicard.—p. 149.
Electric Shock Therapy Under Curare. L. Massion-Verniory, E. Dumont, R. Nicaise and H. Reinhold.—p. 150.

Male Hormones in Treatment of Carcinoma of Female Breast.—According to Sicard, the influence of the ovarian secretion on the development of carcinoma of the breast has been proved clinically and experimentally. Castration, either by surgery, irradiation or the administration of androgens, must be regarded as antagonistic, particularly to the development of metastases. The author has employed castration in a number of patients with osseous metastases. He found that the efficacy of surgical castration can be considerably increased by the administration of testosterone. He describes the different dosage schemes that he employed in the administration of androgens either by intramuscular injection or by implantation of pellets. He now usually administers ten injections of 100 mg. of testosterone every three months. The effect of the implantation of pellets can eventually be complemented by intramuscular injections. To be effective, testosterone must be given in large doses, which eventually leads to the development of male characteristics such as change of voice, hair growth and hypertrophy of the clitoris.

Revista Clinica Española, Madrid

28:73-144 (Jan. 31) 1948. **Partial Index**

*Observations of Salicylemia as Basis of Treatment of Acute Rheumatic Endocarditis. Effects of Bicarbonate and Sodium Benzoate. E. Arjona, J. M. Alés and J. M. Segovia.—p. 92.
Use of Phase Contrast Microscope in Diagnosis of Tumors. A. Bullen Ramirez.—p. 99.
Hepatitis with Jaundice in Patients with Tuberculosis. V. Bozal Urzay and E. Nerin Mora.—p. 105.
Surgical Treatment of Pulmonary Echinococcus. A. Pursell Menguez. —p. 111.
*Syndrome of Amyotrophic Lateral Sclerosis of Traumatic Origin Treated Surgically. C. Jimenez Diaz and Obrador.—p. 120.
*Menopausal Hyperthyroidism and Estrogens. P. De La Peña Regidor. —p. 123.

Salicylemia in Treatment of Acute Rheumatic Endocarditis.—Arjona and his associates demonstrate that by administering relatively large doses of sodium salicylate and benzoate (8 Gm. for adults) for two or three days and by following this with smaller doses of 4 to 6 Gm., effective salicylemia levels can be maintained. The administration of small doses from the beginning also permits useful levels to be attained, but when seventy-two hours go by before they are reached the disappearance of symptoms is delayed. Adequate salicylemia levels can be maintained also by the rectal administration of these salts. Rectal administration is especially useful in cases in which symptoms of gastric intolerance appear. An enema of 8 Gm. in an adult, administered by the drip method, and later enemas providing 4 to 6 Gm. permit the maintenance of effective levels of the drug.

Surgical Cure of Amyotrophic Lateral Sclerosis of Traumatic Origin.—Jimenez Diaz and Obrador report a man, aged 48, who fifteen years previously had been in a traffic accident. He was unconscious for several hours and later complained of paresis in both arms and cervical pain. These symptoms subsided gradually, but motor disturbances remained. His hands became atrophied. He resumed his occupation at the end of a year, but force and movement in the hands were still impaired. He had a feeling of heaviness and of pain in the neck. His condition remained stationary for a number of years, but during the last year paresis and atrophy increased. Examination revealed increased reflexes of the lower extremities, and myelography disclosed an obstruction in the cervical column. Operation revealed great hypertrophy of the dura. Freeing the medulla by sectioning the ligamentum denticulatum effected prompt improvement in the motor activity of the hands. This proves the importance of the fixation of the medulla to the internal surface of the dura by the dentate ligaments. Patients with syndromes of the anterior motor neuron of the cervicothoracic enlargement or of amyotrophic lateral sclerosis, who have a history of trauma, should be subjected to myelography so that possible mechanical obstruction may be detected, the surgical removal of which will produce a cure. The case demonstrates greater vulnerability of the motor fibers in the compressive processes. This explains the preponderance of motor and atrophic disturbances.

Menopausal Hyperthyroidism and Estrogens.—De la Peña Regidor reports the case of a woman, aged 33, who had symptoms of hyperthyroidism after successive removal of the right and left uterine adnexa. The conclusion was reached that her hyperthyroidism was the result of the cessation of the ovarian function. Administration of ovarian hormones checked indirectly the production of substances causing excessive function of the thyroid. The institution of this treatment had the desired effect.

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Schweizerische medizinische Wochenschrift, Basel

78:217-240 (March 13) 1948. **Partial Index**

*Experiences at Canton Center in Zurich with Intensifying Screen Roentgen Pictures in 65,000 Examined Cases which were Reexamined for Clarification; Contribution to Preventive Medicine. F. K. Fischer and H. R. Schinz.—p. 217.

*Intracavity Therapy for Pulmonary Tuberculosis; Our First Results with Streptomycin. E. Tanner, E. Balsiger, P. Ochsner and O. Stamm. —p. 220.

Local Treatment of Tuberculous Lesions with Sulfones. N. Rist.—p. 224.

Fluorescent Screen Roentgen Pictures of Patients Reexamined for Clarification.—According to Fischer and Schinz, mass examination by roentgenograms made with the aid of the intensifying screen is to be considered as a gross method which only rarely will be an aid to definite diagnosis. Roentgenograms made with the aid of the intensifying screen of 2,823 (4.6 per cent) of 65,526 persons who were examined by this method during the period from June 1945 to July 1947 showed positive alterations which required reexamination for clarification. Only 2,532 of them were available for such reexamination. Eight hundred and fifty (29.8 per cent) proved normal, while positive clarification results were obtained in the remaining 1,682 persons; 808 (1.23 per cent) had pulmonary tuberculosis, and this was not known previously in 644 (0.99 per cent) of them, while it was known to the family physician in 164 cases (0.24 per cent). There were 37 open cases among the previously unknown cases and 8 open cases among those previously known. Of the 506 inactive, closed cases of pulmonary tuberculosis which were demonstrated on reexamination, 388 (0.59 per cent) had not been known previously and 118 (0.18 per cent) had been known previously. There were in addition 257 active closed cases, 219 of which were not known previously, while 38 were known. Diagnosis of closed active cases is of less importance prophylactically than that of the open cases, but is of the greatest importance to the patient. Control of these patients is essential, since transition from the inactive phase of the disease to the active phase may take place at any time. The same applies to the inactive closed cases.

Local Streptomycin Treatment in Pulmonary Tuberculosis.—Tanner and his co-workers treated 6 men with pulmonary tuberculosis and cavities demonstrated by tomography, with streptomycin. A total dose of 18 to 29 Gm. of the drug was injected through the chest wall directly into the cavity in fractional doses of 0.2 to 0.5 Gm. In 5 an additional 13.5 to 75 Gm. of the drug was administered by intramuscular route, so that the total dose of the drug varied from 42.5 to 97 Gm. The sixth patient had received 115 Gm. of the drug by the intramuscular route previously but without definite results. Treatment of this patient and another patient was a failure because the drug was expectorated and because of the resistance to the drug caused by the previous parenteral treatment with streptomycin. The other 4 patients showed a pronounced reduction in the size of the cavity after a short time. There was also a partial regression of the process in the lung; the amount of sputum and the number of bacilli were reduced. This method of treatment is recommended particularly for cases of pulmonary tuberculosis with cavities in which collapse therapy is not feasible, or in which it was ineffective. Daily introduction of 0.5 Gm. streptomycin in a 1 cc. solution into the cavity combined with 1 Gm. of the drug in two fractional doses per day by intramuscular route may be employed as the sole treatment or as a preparatory treatment for surgery. Untoward reactions may be avoided with careful technic. Not a single accident or dissemination was observed with six hundred local injections.

Semaine des Hôpitaux de Paris

24:633-654 (March 14) 1948. **Partial Index**

Sternal Marrow in Evolutive Course of Nephritis. H. Metzger and J. G. Lévy.—p. 640.

*Melanophore as an Aid to Diagnosis of Pregnancy: Its Application and Value. L. Servantie and G. F. Moretti.—p. 642.

Melanophore in Diagnosis of Pregnancy.—Servantie and Moretti modified Hogben's Xenopus test for pregnancy by using frogs (Rana esculenta) in tests. Hypophysectomy was performed on the frogs under ether anesthesia. Although the discoloration of the animals becomes complete within five to six hours, it is advisable to examine microscopically the interdigital membrane of the posterior paw of the frog to verify whether all the melanophores are punctiform without asperities or digitations. No animals should be used for pregnancy tests which do not present a complete contraction of the melanophores. The urine of the woman to be tested for pregnancy (one tenth of the weight of the frog) is injected into the dorsal lymph sac of the animal. The reaction was negative in two hundred instances in which the urine of normal men or women was injected into the frogs. The reaction was positive in one hundred instances in which the urine of pregnant women was injected into the frogs. An assay of the melanophore-expanding hormone was made in 36 women in whom the duration of pregnancy varied from one to nine months; the melanophoric index on the average varied from 2.1 in the first month of pregnancy to 1.7 in the ninth month of pregnancy. The index of expansion may be increased from 1.8 or 2 to 2.5 or 3 by bringing the urine in contact with kaolin or aluminum for twenty-four hours before it is injected into the hypophysectomized frog. The frog test is to be considered as a safe and specific test for pregnancy. It proved to be strongly positive in two instances in which the Brouha test was falsely negative.

24:829-890 (March) 1948. **Partial Index**

Primary Cancers of Lung. P. Nicaud.—p. 839.

*First Clinical Observation Concerning Effect of Vagotonine in One Case of Fatty Hepatomegalia of Pancreatic Origin. J. Caroli and J. Etève. —p. 850.

*Temporal Arteritis. L. Justin-Besançon, H. P. Klotz, A. Rubens-Duval and H. Sikorav.—p. 863.

Effect of Vagotonine (Pancreatic Hormone).—Caroli and Etève report a case of fatty liver associated with chronic calcified pancreatitis in a man aged 43. There were general anemia, loss in weight and fatty diarrhea. Daily administration of crude pancreas proved ineffective. Three tablets (75 mg. of the crude or 3 mg. of the pure substance) of vagotonine, the pancreatic hormone isolated by Santenoise, were given daily by mouth; later 300 mg. of crude vagotonine or 9 mg. of pure vagotonine was given. Improvement in the general condition and a pronounced decrease in the enlargement of the liver resulted from continued treatment for six weeks. This observation supports the results obtained by Santenoise with vagotonine in depancreatized dogs. The livers of the sacrificed animals which had been given insulin and vagotonine were normal, while the livers of the animals treated with insulin alone presented a considerable excess of fat. The general condition of the depancreatized dogs treated with insulin and vagotonine was excellent in contrast to the poor condition of those treated with insulin alone. Vagotonine appears to have a lipotropic effect analogous to that of the lipoaic substance extracted from the pancreas by Dragstedt.

Temporal Arteritis.—Justin-Besançon and his co-workers report 1 case of temporal arteritis in a woman aged 70. The disease is rare in France. The patient presented a temporal and a general syndrome. There were definite signs of inflammation of the two temporal arteries. They were increased in size and there was swelling and redness of the skin overlying the arteries. There was considerable tenderness on palpation; it revealed hypertrophy of the two temporal trunks, which were hard, pulseless and thrombosed. Some segments of the occipital arteries and of the left facial artery presented an identical picture. All the other branches of the arterial tree appeared normal. The patient suffered severe headaches, particularly in the temporal, occipital and nuchal regions. The patient was pale and her face had an anxious expression because of the intense pain. Temperature varied from 100.4 F. (38 C.) to 101.4 F. (38.5 C.). A left temporal arteriectomy was performed. Microscopic examination revealed a subacute arteritis obliterans, with a focus of fibrinoid necrosis and macrophagic giant cell granuloma. Pain was alleviated considerably. The fever did not subside in spite of the arteriectomy. Penicillin proved ineffective. Sixty-four grams of sulfadiazine was administered within eight days; the temperature was restored to normal; pain and swelling disappeared almost completely, but the absence of pulsation persisted. A follow-up of seven weeks is too short to decide whether a definite recovery or a remission occurred. Temporal arteritis is a clinical, anatomic and pathologic entity. Despite its diffuse character, the term temporal arteritis should be retained to emphasize the major symptom and facilitate the diagnosis.

Book Notices

Clinical Methods of Neuro-Ophthalmologic Examination. By Alfred Kestenbaum, M.D., Assistant Clinical Professor of Ophthalmology, New York University, New York. Fabrikoid. Price, $6.75. Pp. 394, with 64 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16, 1946.

In his introduction the author states that the book is intended for a review of clinical methods of ophthalmologic examinations helpful in neurologic diagnosis. He makes no attempt to make it a complete textbook of neurology and omits such diseases as heredodegenerative disorders of the retina and cerebromacular degenerations because they do not present ophthalmologic signs or tests used for neurologic diagnosis, though both the eyes and the nervous system are involved. There are ten chapters presenting, in order, anatomy of the optic pathway, fields of vision, pathology of the optic nerve, chiasmal lesions, retrochiasmal lesions of the optic pathway, eye muscle palsies, gaze movement and gaze palsy, nystagmus, disturbance of symmetrical eye movements, pupil accommodation, palpebral fissure and functional disturbances. There are no photographs or plates, only schematic drawings, which are pertinent and clear. The author describes the methods of examination and discusses the results in various pathologic conditions. He presents field charts to illustrate the types of defect in various locations of the lesions and in parallel columns mentions the defect and the probable underlying pathologic condition. He presents a method of recording the site of retinal lesions which is useful. There are several differential diagnoses presented in parallel columns for quick review. Several of his own tests and innovations are presented, as for example the capillary number test, i. e., counting the number of very small blood vessels on the edge of the disk in optic atrophy. He claims that normally about ten are visible. In optic atrophy they are reduced below six—even as few as three. The book is based on lectures to neurologists and ophthalmologists and is presented in lecture form. It is a most practical presentation of the subject and is well worth careful study by all students of ophthalmology and practitioners.

Man—Weather—Sun. By William F. Petersen, M.D. Fabrikoid. Price, $10. Pp. 462, with 294 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

It is in no sense a pleasure to review this book—a sizeable volume which might wisely have remained unpublished in these days of an already too voluminous medical literature. The format of the book follows the publisher's usual style and quality of physical production; its content, however, evinces such severe faults in technical approach and logical deduction as to exclude it from the field of scientific literature. The relationships of man-weather-sun deserve far more intelligent treatment than they here receive!

Petersen sees "Man as a Cosmic Resonator," responding in numerous physical and chemical ways to the passage of polar and tropical "fronts." He follows three young men—triplets—intensively for forty-two days and finds their ups and downs occurring with or just after the passage of "fronts." Indeed, how could it be otherwise, when he labels thirteen "cold fronts" as passing over Chicago in the forty-two day period of observation? Everything happening in Chicago most of the time must perforce take place with or just after the passage of a "front!" Close inspection of the numerous "biometeorograms"—from which Petersen draws such positive conclusions—fails to reveal any consistent and significant visual relationship; to apply statistical methods as corroboration of relationships not otherwise evident is only to add absurdity to the situation. Statistical methods are useful only in quantitating the significance of relationships observable by other means.

Just a few instances of the illogical reasoning which abounds throughout the book: 1. There were thirteen "cold fronts" and six "warm fronts" listed as passing over Chicago during the forty-two day triplet study—one "cold front" about every three days—and still Petersen naively states (page 30) that the thirteen pulse crests of Harold all "followed periods of cold!" Each of them must also have perceded a period of cold! 2. Graphs are presented (in eight different sections) to show a different pattern of temperature and barometric pressure behavior for the four days before and the four days after periods of pulse or other crests, overlooking entirely the fact that there can be no such patterns when most such four day periods overlap the passage of at least two cold fronts irregularly spaced. 3. Figure 118, page 135, shows in clear form the sharp monthly or menstrual cycle in basal metabolic rate of a female subject for a nine month period, but Petersen quite dogmatically relates these premenstrual rises and sharp menstrual declines in metabolic rate to coincidental or preceding changes in outdoor temperatures!

But why go on? Indexes of functional activity in the body either rise or fall as environmental temperatures fluctuate with passing "fronts"; hence Petersen sees a causal relationship! A single attack of acute appendicitis rates a whole chapter in the book; day to day passage of weather "fronts" is said to affect the day to day sex ratio of infants being conceived, when the only method of approximating the day of conception was to go back two hundred and eighty days from the time of birth—probably not over 20 per cent of all conceptions would fall within one Chicago weather cycle of this two hundred and eighty day period!.

The volume is not scientific, but neither is it good nonscientific literature. Faulty punctuation, loose and top-heavy sentence structure, little regard for proper paragraphing, tiresome repetition, and over-use of italics constitute but a few of its faults. Of all Petersen's writings, it does most clearly (?) present his philosophy regarding "Man as a Cosmic Resonator," but perhaps most tragic and significant is the final word of his closing chapter—set in broken type—Chaos.

Sex Education: A Guide for Parents, Teachers and Youth Leaders. By Cyril Bibby, M.A., M.Sc., F.L.S. Cloth. Price, $2.50. Pp. 311. Emerson Books, Inc., 251 West 19th St., New York 11, 1946.

This is a British book from a British point of view, but it differs little from American productions on the subject except that it is much more lengthy and contains a great deal of argumentation in favor of what is generally taken for granted in the United States; namely, the necessity for teaching about sex, the desirability of doing so in the home, and the advisability for having the school take over responsibilities which belong to the home but are not accepted or properly discharged in the home. The book is well written and comprehensive and should be a useful reference book and may even be used as a textbook at the college or perhaps twelfth grade level. There is a special preface for the American edition. The work proper consists of an introductory chapter which poses the problems, followed by chapters on the social setting, the parent's part, the school curriculum, sex problems in the school, the nature of adolescents, the search of the adolescent for knowledge, and a chapter on educating the educators. Almost as prominent as the chapters are the appendixes, of which there are six, dealing with a tentative scheme for sex education, suggestions for practical activities, sources of material and advice, specimen circulars, specimen lectures and a guide to further reading. This may be regarded as one of the better productions in the greatly overwritten field of sex education.

Operative Gynecology. By Harry Sturgeon Crossen, M.D., and Robert James Crossen, M.D., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine, St. Louis. Sixth edition. Cloth. Price, $15. Pp. 999, with 1334 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

In order to avoid increasing the size of the book unduly because of new material, the authors removed considerable historical data. This does not at all detract from the book.

The title of the book is "Operative Gynecology"; yet a considerable part of it is devoted to diagnosis, etiology, histology, pathology and symptomatology. Likewise, numerous illustrations are included which have no bearing on operative technic. In fact, in the first chapter, which deals with "Myoma of the Uterus," ten full pages and a colored plate are devoted to illustrations of different types of uterine myomas.

Throughout the book whole sections of published articles by the authors and others are reprinted in small type. There appears to be too much of this. Likewise, because of the senior author's special interest in foreign bodies left in the abdomen, there are many pages of text and illustrations assigned to this subject.

There is a large and well written section on radiation therapy which is abundantly illustrated. The authors discuss radium and roentgen treatment for both benign and malignant conditions. They believe that radiation in the handling of climacteric patients with troublesome myomas is effective in stopping myoma activity and associated symptoms in 90 per cent of properly selected cases. It reduces to one third the risk of future malignancy, but it still leaves a risk of 0.89 per cent, which definite risk must be given due weight in deciding between radium treatment and operative removal in the individual patient with her special local and general conditions.

Many new illustrations have been added and a few old ones deleted. The three pages of text and the eight illustrations on the old Dudley operation could have been omitted without detracting from the book. In successive editions the authors have wisely decreased the amount of space devoted to retrodisplacements of the uterus. In the 1930 edition, 80 pages and 95 illustrations were given over to retrodisplacements, but in this edition only 35 pages and 67 figures are devoted to this subject.

The high standard of previous editions is maintained in this edition both by the authors and the publishers. The book is well written and abundantly illustrated, and it will undoubtedly continue to retain its well deserved popularity as a textbook on operative gynecology.

Health Instruction Yearbook 1946. Compiled by Oliver E. Byrd, Ed.D., Associate Professor of Hygiene, Stanford University, Stanford University, California. Foreword by C.-E. A. Winslow, Dr.P.H. Cloth. Price, $3. Pp. 299. Stanford University Press, Stanford University, California; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1946.

This is the third volume in a series of yearbooks of which previous volumes have been reviewed in THE JOURNAL. Except for the anomalous dating which has previously been discussed and which puts a 1946 date on material derived largely from 1945, this is a fine job which ought to be continued. The first book was good and the second better. This is better still. In the "1946" edition appears a foreword and preface plus twenty-one chapters dealing with various phases of health, as social accomplishment; social problems; nutrition and health; excretion and health; exercise and body mechanics; fatigue and rest; mental health and disease; heredity and eugenics; infection and immunity; chronic and degenerative disorders; habit forming substances; care of special organs; safety; health and physical environment; health services and facilities; family health, school health, occupational health; community health services; trends and possibilities; international health; a bibliography; an author index, and a subject index.

The items are well selected. For example, in the chapter on infection and immunity one finds first of all a general survey of the situation, which takes two pages. Following this are items dealing in order with venereal disease in Honolulu; recent advances in control of infectious diseases; articles on penicillin; studies on infectious hepatitis; SN7618 as an effective new agent against malaria; failure of sulfonamide drugs to prevent epidemics of streptococcic disease; articles on disinfection of air by germicidal vapors and mists and on ultraviolet control of respiratory infections; vaccination against influenza; immunization against whooping cough; articles on various aspects of tuberculosis in the armed forces and among civilians; studies on streptomycin; plague in the United States; fungi in lung disease; articles on poliomyelitis; complications from scarlet fever; German measles during pregnancy; compensation for typhoid carriers; the increase of diphtheria in Michigan; postage stamps and disease; pigeons and virus pneumonia; smallpox in San Francisco; articles on the venereal diseases, and on public health uses of DDT. The reporting in each instance is brief, factual and noncontroversial.

In the introduction the authors take cognizance of the previous recommendation that the dating of the books be changed. Without wishing to be objectionably insistent, we repeat that the dates are misleading and that the change should be made as soon as possible, so that the entire series can be properly dated. The longer the present erroneous dating is carried forward, the greater will be the ultimate confusion and the more difficult its rectification.

La citologia vaginal humana en condiciones normales y patologicas; Su importancia para el diagnostico y control terapeutico en ginecologia. Por Ines L. C. de Allende, Doctora en medicina, jefe de la Seccion endocrinologia del Instituto de investigacion medica, Cordoba, Argentina, y Oscar Orias, doctor en medicina, director del Instituto de investigacion medica. Prologo del Prof. Dr. Bernardo A. Houssay, Paper. Pp. 313, with 105 illustrations. El Ateneo, Florida 340, Buenos Aires, 1947.

This book concerns human vaginal cytology in normal and pathologic states with the exception of cancer. It stresses and describes in some detail the endocrine aspect of vaginal cytology. The author is an experienced investigator in this field, having spent several years of study in the United States and in Argentina. The book is well written and contains a large number of drawings, color plates and graphs, which have been carefully selected and prepared.

The author describes the cytologic aspects of the menstrual cycle under seven phases as follows: (1) menstrual phase; (2) postmenstrual phase; (3) preovulatory phase; (4) ovulatory phase; (5) postovulatory phase; (6) progesterone phase, and (7) premenstual phase, with diagrams illustrating the cytologic features of each.

Disorders of menstruation are discussed from the standpoint of the cytologic findings, frequently correlated with clinical and operative findings. Cornification curves are illustrated in graphic form, showing the rise in cornification associated with increasing production of the follicular hormone. Graphs are presented in cases of normal ovulatory cycles and in anovulatory cycles. In some cases of the latter, confirmatory surgical findings of persisting follicles coupled with an absence of ovulation and a continuous abnormally high cornification level are presented. Bleeding was shown to follow a drop in cornification, indicative of estrogen withdrawal.

Primary and secondary amenorrhea are discussed cytologically with the presentation of pictures of cells and graphs demonstrating cytologic deviations from normal.

Experimental results demonstrating effects on the amenorrheic curve with chorionic gonadotropin are presented.

Experimental production of cornification in vaginal smears in human castrates is shown following the administration of estrogen in its various forms, while the effect of the androgenic hormones and progesterone are also included.

This book should prove of value to endocrinologists, to those interested in fertility, to clinical cytologists and to pathologists. It demonstrates the value of well intergrated cytologic studies in relation to the endocrine physiology of the ovary and of the menstrual cycle with their associated disorders.

Handbook of the Connecticut Cancer Society, Inc. (Branch of the American Cancer Society, Inc.). Fabrikoid. No pagination, with illustrations. Connecticut Cancer Society, Inc., 95 North Main St., Waterbury 14, 1946.

This is a handbook bound in a heavy paper cover simulating red leather and stamped in gold. The first item in the handbook is a brightly colored map of Connecticut by counties, showing those counties organized for field army and campaign purposes, those for campaign only and those unorganized. The state appears to be well covered by local anticancer groups. The publication is apparently derived in part from the American Cancer Society, of which a brief description is given followed by a chronological résumé of the state program and the state organization chart. After this pages are devoted to the personnel of the state society. There is a description of the committee on tumor study and of the Association of Connecticut tumor clinics, followed by information on the Division of Cancer Research of the State Department of Health. Then follows organizational material, such as how to organize a district, how to conduct an educational program, including the programs for youth and in industry; how to handle publicity, and how to carry out a service program in cooperation with the medical profession. A description is given of the information centers, and there are discussions of fund raising and financial reporting. There follows a page on what the layman should know about cancer, plus information on national research projects and official statistics. In the appendix is a list of printed material available from the American Cancer Society and the articles of association and the by-laws of the Connecticut Cancer Society. This is an excellent working kit for a working organization and might well

serve as a pattern for similar types in other states. In the absence of any price, it is to be presumed that sample copies may be procured free by making inquiry on official letterheads to the Connecticut Cancer Society at the address given.

Help Them Help Themselves. By Juliette McIntosh Gratke. Cloth. Price, $2.50. Pp. 184, with illustrations. Texas Society for Crippled Children, 3703 Worth St., Dallas 1, Texas, 1947.

This book deals with the problems of the management of the child with cerebral palsy, in the fields of education, physical therapy, occupational therapy, speech therapy and general hygiene. In addition to a short review of the literature relating to some of the medical aspects of the problem of cerebral palsy, the book attempts to give some of the specific technics which may be employed in the training of the child. The most authoritative section of the therapies deals with speech training, in which the author is especially qualified. The book is of definite value to mothers who are attempting to train their children at home without benefit of medical direction, but may also be of value to some of the lay workers, nurses and therapists working with these children. The subject matter is illustrated by pictures, which, unfortunately, have suffered in clarity in reproduction. In all other manners, however, the book is well written and organized. Its cover is attractive, and its printing and paper are of good quality.

Although this book is by no means complete or, for that matter, authoritative, it is of great value for parents. It is written by the parent of a child with cerebral palsy, whose feelings have colored all of her writing. As a result, the book is warmly and clearly written and has a charm and style which makes it easy, interesting and valuable reading. For this reason alone, it is well worth recommending to parents.

Rheumatism and Soft Tissue Injuries. By James Cyriax, M.D., B.Ch., Physician-in-Charge of the Physiotherapy Department, St. Thomas's Hospital, London. Cloth. Price, $9.50. Pp. 410, with 208 illustrations. Paul B. Hoeber, Inc., 49 E. 33rd St., New York 16, [1947].

There is no doubt about the qualifications of the author and his enthusiasm for his subject. His writings on this and related subjects are well known. His main thesis is mobilization as a therapeutic measure. He contrasts his theories with the theory of the bone setter who believes in subluxation of the vertebrae as the cause of practically all the ills that human flesh is heir to.

It is unfortunate that in the author's cases of subacromial bursitis roentgen treatment failed; this is not the experience of most American surgeons. It is unfortunate that so many of the photographs are not instructive or worthy of the space they occupy.

If the author rides his hobby a bit too often and attempts to explain too many conditions on the same theory, he may be excused because he has undoubtedly given so much personal attention to his patients that he has obtained good results where others have not.

His discussion of the manipulations of bone setters, osteopaths and chiropractors is well worth reading.

There is much material that is not related to the title of the book. The author includes much of the material that enters his daily practice.

Goethe als Patient. Von Dr. Wolfgang H. Veil, Direktor der Medizinischen Universitätsklinik Jena. Jena. Second edition. Paper. Pp. 302. Gustav Fischer, Jena 15, 1946.

Shortly before World War II Dr. Veil published an interesting medical study of Goethe and a second edition of this work, containing additional material is now available. The life history of Goethe has of course been painstakingly documented in the literature that has accumulated during the past hundred years, and Dr. Veil has made careful use of the source material in ferreting out the medical and psychologic items of significance. He starts his study with an analysis of the symptoms evident during the terminal episodes, which were apparently due to coronary thrombosis. He then carries through a readable account of the varied medical as well as psychologic episodes that occurred during the lifetime of his subject. The book will be of interest to the student interested in medical history, for it depicts the medical theory and practice of a time with which few medical men are familiar.

Textbook of General Surgery. By Warren H. Cole, M.D., F.A.C.S., Professor and Head of the Department of Surgery, University of Illinois College of Medicine, Chicago, and Robert Elman, M.D., F.A.C.S., Professor of Clinical Surgery, Washington University School of Medicine, St. Louis. Fifth edition. Cloth. Price, $11. Pp. 1160, with 558 illustrations. D. Appleton-Century Co., Inc., 35 W. 32nd St., New York 1, 1948.

Now in its fifth edition, this teaching volume continues to improve. The general plan of the text remains unchanged. The advances made in surgery are specifically reflected. These include the lessons of the war and the growing knowledge of chemotherapeutic and antibiotic agents. Functional concepts of shock are presented with a clear understanding of the surgeon's point of view. Pleasing is the emphasis on the clinical, pathologic and physiologic aspects of surgery with relegation of technic to a minor status. The uses of the surgical tools—the hollow needle, the various fluids, chemotherapeutic agents, tubes, catheters and dressings, with which the interns and externs spend so much time—are well described. This is proper business for the student. There is time for major surgical technic later. The book continues to merit recommendation for teaching of medical students.

Annual Review of Microbiology. Volume I. Charles E. Clifton, Editor; Sidney Raffel and H. Albert Barker, Associate Editors. Cloth. Price, $6. Pp. 401. Annual Reviews, Inc., Stanford University, California, 1947.

The vast amount of literature which has arisen recently on studies of micro-organisms and the attendant inability of the worker to keep abreast of all aspects of the field prompted initiation of this new series of reviews.

This volume and its successors are intended to fulfil the same function that "Annual Review of Biochemistry" and "Annual Review of Physiology" have in their respective fields. The type of review and manner of presentation are similar to those of the companion series.

The contents of this first volume include morphology and cytology of protozoa, antigenic variation in protozoa and bacteria, life cycle of malarial parasites, variation in phytopathogenic viruses, some aspects of the problem of growth factors for protozoa, bacterial metabolism, nitrogen metabolism, industrial fermentations, quaternary ammonium compounds, antibiotics, chemotherapeutic agents, medical and epidemiologic aspects of enteric infection, the Rickettsiae and respiratory viruses.

Topics in Physical Chemistry: A Supplementary Text for Students of Medicine. By W. Mansfield Clark, Ph.D., Sc.D., DeLamar Professor of Physiological Chemistry, the School of Medicine, Johns Hopkins University, Baltimore. Cloth. Price, $10. Pp. 738, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

The first sentence in this unique book is a quotation from Clerk Maxwell: "For the sake of persons of different types, scientific truth should be presented in different forms and should be regarded as equally scientific, whether it appears in the robust form and vivid colouring of a physical illustration, or in the tenuity and paleness of a symbolical expression." The choice of this sentence to head the preface is highly significant, for Professor Clark is aware not merely of the facts of physical chemistry; he is keenly aware of the medical reader. He knows what aspects of physical chemistry the medical student is generally assumed to understand thoroughly but which many students understand only superficially. Hence he includes a lucid and unexpected chapter on the standard chemical balance and another on measurements of volume. The author understands what information is important to the medical student and medical investigator. Hence he gives a much more detailed treatment of such subjects as the equilibrium of blood electrolytes, the behavior of colloids and proteins and stereoisomerism than is found in the conventional texts on physical chemistry. Finally, the author is almost obsessed with the repugnance which most medical students manifest toward calculus. Accordingly, every important equation is handled by simple algebra. The one unavoidable use of calculus (Kelvin's "compound interest law of nature") is carefully explained in the first of the five appendixes. This remarkable appendix is excellently designed to make calculus simple and entertaining even to those who have a violent prejudice against it. A sample is the quotation, in the opening paragraphs, from Charles Slichter's "Science in a Tavern:" "Physics is the clanking, noisy part of mathe-

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matics; chemistry is the smelly part of mathematics; biology is the mussy part of mathematics." The author's robust humor bursts forth even in the appendix on definitions. Thus, among the rigorous definitions extended to the sixth decimal place and beyond, we find such things as the following: "Poise (noun). Unit of viscosity. See Viscosity. (Also: 'Poise is the art of raising an eyebrow instead of the roof.')"

More clinical chemical measurements depend on color matching than on the determination of weights or volumes. Hence it is unfortunate that the author cannot analyze the magnitudes of error inherent in the visual and photoelectric comparators (colorimeters) with the same detail as is applied to the chemical balance and the volumetric pipet. The principles of the various types of instruments are, indeed, taken up with admirable clarity. Each of the numerous commercially available instruments, however, has its own limitations and eccentricities. Until we have an instrument as well standardized as the analytical balance, an exhaustive treatment of the comparator will be impossible in a book of this size.

In contrast to the usual text of physical chemistry, this book is so constructed that each chapter is complete enough to stand by itself. The student who wishes to do so may start in the middle of the book with the chapter on the blood electrolytes and follow the author's reasoning without difficulty.

The late Dr. Edwin Kepler once said: "The advance of medical science depends ultimately on the discovery of better ways of measuring things." All who share such a view will find Professor Clark's volume invaluable.

The Psychology of Behavior Disorders: A Biosocial Interpretation. By Norman Cameron, M.D., Ph.D. Under the Editorship of Leonard Carmichael, President, Tufts College and Director Tufts Research Laboratory of Sensory Psychology and Physiology, Boston. Cloth. Price, $5. Pp. 622, with 2 illustrations. Houghton Mifflin Co., 2 Park St., Boston 7, 1947.

In his preface to this volume the author points out that "when we turn to psychiatry, we do not enter a new and a different world. The psychiatrist is still the physician, an organism working with the patient, another organism. They share and operate within a common social environment; they communicate by means of socially determined signs and sounds. These are the materials of medical practice as well as of psychology and psychopathology." From the beginning to the end of his book, Dr. Cameron practices what he teaches. His way of writing gives the impression of working with and sharing his ideas with the reader. He has attempted to avoid technical terminology as much as possible and explains it in everyday language whenever he introduces it. Each of the chapters are documented with case material and there are footnoted references to modern works on psychiatry and psychology. This is a textbook that provides interesting and useful reading for professional workers.

The opening sentences of the author's introduction clarify the title of the book: "The neuroses and psychoses, which together we call behavior disorders, are a natural part of our everyday environment. As adults all of us have dealings with neurotic and psychotic persons, and our children are being brought up among them just as we once were." In discussing behavior disorders as a national problem, the author tells his readers that "the problem of behavior disorders belongs, not alone to those who have them and those who directly treat or care for them, but to all of us." The first several chapters of this book are devoted to a description of the development of personality from uterine life to social maturity. These chapters include the development of the numerous mechanisms of defense which the author designates as basic adjustive technics. There are eight chapters on various forms of mental illness and a final chapter on therapy.

The author approaches his subject matter from a biosocial point of view, which is a modification of the psychiatry of Dr. Adolf Meyer, which he points out "differs radically from the contemporary psychosomatic approach to the behavior disorders by breaking completely with the trends of mind-body dualism."

In addition to the discussions on personality and its disorders, there is much useful information in this volume which is not ordinarily found in standard textbooks on psychiatry.

Lehrbuch der Geburtshilfe und Gynäkologie. Herausgegben von E. Anderes, H. Guggisberg und Th. Koller. Band II: Lehrbuch der Geburtshilfe. Bearbeitet von Pd. Dr. H. Buess, et al. Herausgegeben von Prof. Dr. Th. Koller, Direktor der Univertitats-Frauenklinik in Basel. Erster Teil; zweiter Teil. Cloth. Price, 110 Swiss francs. Pp. 613, with 342 illustrations; 614-1323, with 343-711 illustrations. S. Karger, Holbeinstrasse 22, Basel.

This two volume textbook on obstetrics is the first to come out of a German-speaking country since the war. It was written by a group of nine obstetricians from the leading clinics in Switzerland under the editorship of Prof. Dr. T. Koller, the director of the University Frauenklinik in Basle. The two books could have been combined into a single volume, for they contain only 1,300 pages.

The first volume covers the history of obstetrics, the anatomy of the reproductive organs, including the hormonal glands which control them, the physiology of the reproductive function, normal reproduction and a discussion of some of the abnormal presentations and positions. The second volume deals largely with the pathologic complications of pregnancy and labor. The final chapter contains an excellent discussion of the anomalies and the pathologic conditions of the fetus and newborn.

The teaching in this textbook conforms with the accepted practice in the large German clinics prior to the recent upheaval in that country. Some major changes have been made, but they are in the minority. Clinical data presented in the various chapters by excellent tables and graphs are from the various Swiss clinics. However, the majority of the illustrations are from such well-known texts as Bumm, v. Jaschke, L. Seitz, Martius and Sellheim. Many new illustrations have been added.

Much can be said about the therapy and management of many of the obstetric complications. The great advances in the last decade which have altered the practice of obstetrics so favorably in this country have not had wide use on the continent. Analgesia and anesthesia are discussed briefly. Blood and plasma have not had wide use in obstetrics. The antibiotic drugs have probably not been available for widespread use. These major advances will undoubtedly find welcome acceptance in the near future.

The treatment of postpartum hemorrhage has not been brought up to date. The author still uses the aorta compressor and other heroic measures which have long been replaced by more rational therapy. Too great emphasis is placed on a long list of oxytocic drugs and cardiac stimulants of unknown value, and there is too little discussion of the management of the third stage of labor.

The illustrations, printing and format are excellent. There is no bibliography, although there are some references to authors in the text.

This textbook of obstetrics is a welcome contribution at this time and will undoubtedly become the standard text in German-speaking medical schools on the continent.

Retropubic Urinary Surgery. By Terence Millin, M.A., M.Ch., F.R.C.S., Surgeon, All Saints' Hospital for Genito-Urinary Diseases, London. Cloth. Price, $7. Pp. 208, with 163 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The author, a urologic surgeon of considerable experience, presents an inclusive monograph on the retropubic approach to various surgical diseases of the prostate gland. In particular, he details his experience with retropubic prostatectomy for benign prostatic hypertrophy. He brings to attention another surgical approach to the prostate, which since it was first described by van Stockum in 1909 has attained little recognition. In order to stress advantages of the retropubic operation the author tends to emphasize the shortcomings of all other approaches to the prostate. His enthusiasm for the operation which he describes is such that for the year September 1945 to September 1946 he employed the retropubic operation in 87 per cent of all cases of prostatic obstruction treated surgically. While it is true that there is probably no one else with experience in this type of surgery comparable to that of the author, even the majority of urologists would not agree with this selection of operation in so large a percentage of patients. The experience of the author is based on 375 cases, the first of which was in 1945.

Surgical anatomy of the prostate, types of instruments used, operative technic and essentials of preoperative and postoperative care are discussed. In most cases the author performs retropubic prostatectomy as a one stage procedure perhaps following preliminary drainage of the bladder with an indwelling urethral catheter. The author describes 18 cases in which this operation was employed as a second stage procedure following preliminary suprapubic cystostomy.

In this experience there have been relatively few postoperative difficulties or complications associated with retropubic prostatectomy. Incontinence does not occur if care is taken to avoid avulsion of the mucosa of the membranous urethra. Although the author has had only 1 case of persistent urinary incontinence, varying degrees of temporary leakage have occurred in a few cases. In a small number of cases there is some leakage of urine suprapubically following removal of the indwelling urethral catheter, which has been left in place postoperatively for only three days in most of his recent cases.

Chapters are devoted to enlargements of the subcervical and subtrigonal lobes, the fibrous prostate and the calculous prostate, for the treatment of all of which the author presents certain advantages of the retropubic route. While his experience with radical removal of the malignant prostate is somewhat limited, he suggests that retropubic prostatectomy has certain advantages in cases of this type.

Surgical treatment via the retropubic approach of carcinoma of the bladder, traumatic rupture of the posterior urethra, prostatic abscess and stress incontinence in women is also discussed. Although one experienced in this field of surgery undoubtedly could find many uses for this approach, it appears reasonable that considerable time must elapse before final comparative appraisal of the retropubic approach can be forthcoming.

The author deserves great credit for his development of retropubic surgery, as little had been done in this field prior to the initiation of his efforts. He has brought to attention another approach to the prostate and region of the vesical neck which undoubtedly will prove to be useful in selected cases. The urologist now has the choice of four main approaches to the prostate gland, an opportunity which is stimulating, provocative and at times confusing.

Les syndromes douloureux de la région épigastrique. Par René-A. Gutmann. Tomes I et II. Bibliothèque des grands syndromes. Directeur: H. Roger. Fourth edition. Paper. Pp. 739; 766, with 1373 illustrations. G. Doin & Cie, 8 Place de l'Odéon, Paris, 6e, 1947.

This is the fourth edition of Dr. Gutmann's valuable work on painful syndromes of the epigastrium. Gutmann is one of France's most distinguished internists and gastroenterologists and has been in charge of the gastroenterologic clinic at the Salpêtriere for many years. His book is well written and beautifully illustrated with reproductions of 962 roentgenograms. The first 318 pages are on ulcer and its treatment. The only criticism of this section might be that in it Dr. Gutmann is too inclined to quote from the work of others and too reluctant to tell of his own experience and opinions.

The next section is on the earliest symptoms of cancer of the stomach; there are about 200 pages in this section. Dr. Gutmann wisely emphasizes the importance of studying not the late symptoms of cancer of the stomach but the early ones.

Section VIII is on the dyspeptic syndrome. Although today we realize that dyspepsia is not a good word, it may still be used for lack of a better one. In this section Gutmann discusses all sorts of conditions, such as aerophagia, cardiovascular disease, blood diseases, hyperthyroidism and hypothyroidism, asthenias and anorexias.

Unfortunately, Section IX, on nervous disorders, is only 20 pages long. In this the author discusses the "syndrome solaire" vagotonia and sympatheticotonia and digestive troubles associated with psychoses.

Section X is on gastritis and duodenitis and the problem of hemorrhage. He discusses the important problem of hematemesis without a definite cause.

Section XI is on digestive troubles due to sensitization and digestive intolerance.

Following this are sections on digestive troubles associated with avitaminoses, syphilis, tuberculosis and deformations of the stomach and diaphragm; also postoperative syndrome. This is a particularly useful chapter.

Certainly, any one who can read French comfortably and would like to get an insight into the best French concept of gastroenterology should read through these two volumes.

Gutmann's preface to this fourth edition is very moving. First he gives homage to Professor Gosset, who has died. Then Gutmann tells a little of the years during the war, during which he had to hide, sometimes in a haystack, in order to save his life from those who wished to murder him. As he says, his time was lost because it was spent for the most part in attempts just to live and to keep out of the hands of the Gestapo. His son Claude was murdered by the Gestapo; also his nephew and his cousin. His brilliant pupil, Dr. Dulcy, was tortured and murdered. His assistant, Mademoiselle Dr. Rekis, was murdered, together with dozens of other students and assistants in the Salpêtriere.

Communicable Disease Control: A Volume for the Health Officer and Public Health Nurse. By Gaylord W. Anderson, A.B., M.D., Dr. P.H., Mayo Professor and Director, School of Public Health, University of Minnesota, Minneapolis, and Margaret G. Arnstein, R.N., M.A., M.P.H., Assistant to the Chief, Division of Nursing, United States Public Health Service. Second edition. Cloth. Price, $5. Pp. 450, with 7 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1948.

The second edition of this popular book will be welcomed by all who are familiar with the first edition. The volume, while intended for the health officer and the public health nurse, will be found useful by the student and practitioner. Divided into two parts, it contains discussions of many topics, including control measures, administrative agencies, role of the public health nurse, care of communicable disease cases at home and detailed discussions of many infectious diseases.

Dermatology for Nurses. By G. H. Percival, M.D., Ph.D., F.R.C.P.E., Grant Professor of Dermatology, University of Edinburgh, Edinburgh, and Elizabeth Toddle, S.R.N., Sister in Charge, Department of Dermatology, Royal Infirmary, Edinburgh. Cloth. Price, $4.50. Pp. 116, with 73 illustrations. Williams and Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

This compact little book contains a fund of practical information for the nursing care of patients with diseases of the skin. Only a few of the more common diseases are considered, but emphasis is placed on the principles of treatment which can be applied as well to the diseases which were omitted. Bandaging, bathing, the application of salves, lotions and the like are all fully considered and illustrated with photographs. In places, the writing could have been more simple.

The Scientific Paper: How to Prepare It, How to Write It, A Handbook for Students and Research Workers in All Branches of Science. By Sam F. Trelease. Cloth. Price, $2. Pp. 152, with 8 illustrations. Williams & Wilkens Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

This manual has gradually evolved from a small pamphlet into a useful work for those who wish to prepare a scientific paper. Added is a section on the use of the scientific library for research purposes. The recommendations follow, as no doubt they should, the principles of the Williams & Wilkins Company. The editorial staff of the American Medical Association is a little surprised that there is no reference whatever to the book called "Medical Writing," which covers somewhat the same ground with specific reference to medical contributions.

The American College Dictionary. Edited by Clarence L. Barnhart with the Assistance of 355 Authorities and Specialists. Cloth. Price, $5. Pp. 1432, with illustrations. Random House, Inc., 457 Madison Ave., New York 22, 1947.

This is the newest dictionary on the American scene. A great number of scholars cooperated in its development and it has already had a considerable success. In the field of medicine and related fields, such as psychology and therapeutics, a considerable number of New York physicians have been helpful. The book is more modern than any other similar book. It includes considerable information not available in other dictionaries, such as rules for punctuation, proofreader's marks and notes on footnotes and bibliography.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

MALARIA

To the *Editor*:—A missionary family expects to leave for Xingu Valley in Brazil this July. Malaria is endemic in this area. The family will consist of 2 adults, a 2 year old child, and a newborn infant. What are the suppressive and therapeutic doses of quinine, "atabrine" and chloroquine that I may recommend? Which of these would be more suitable for the children?
Leonard L. Weber, M.D., Philadelphia.

ANSWER.—Malaria due to Plasmodium vivax would be most frequently encountered in Brazil. Unfortunately, no curative agent for this type of malaria is available. Quinine, quinacrine ("atabrine"), chloroquine and chlorguanide are all effective suppressive agents, however, and the choice of agent can be determined by relative toxicity and availability. Chlorguanide is the least toxic agent, chloroquine next, and quinacrine and quinine the most toxic. Actually, quinine is not seriously toxic when compared on a weight basis with the other drugs, but in therapeutic doses, side reactions are frequent and unpleasant.

Neither chlorguanide nor chloroquine has been used in infants or children sufficiently to establish dosage schedules which may be recommended. Chloroquine would probably be the drug of choice for infants and children because of ease of administration and relative freedom from serious toxic effects. Dosage should be adjusted to the age and weight of the child.

The following are the recommended dosage schedules for the four antimalarial drugs mentioned:

Quinine: Therapeutic dose, adults: 1.0 Gm. three times daily for two days followed by 0.6 Gm. three times daily for five days. Suppressive dose, adults: 0.6 Gm. daily.

Quinacrine: Therapeutic dose, adults: 0.2 Gm. given with 1.0 Gm. sodium bicarbonate in 200 to 300 cc. water every six hours for five doses. Following this, a dose of 0.1 Gm. three times daily for six days should be employed. Children 1 to 4 years: 0.1 Gm. three times daily for first day; then 0.1 Gm. daily for 6 days. Children 4 to 8 years: 0.2 Gm. three times daily for first day; then 0.1 Gm. twice daily for six days. Suppressive dose, adults: 0.1 Gm. daily. Children: 0.05 Gm. daily.

Chloroquine: Therapeutic dose, adults: 1.0 Gm. initially followed by 0.5 Gm. after six to eight hours and 0.5 Gm. on each of two consecutive days. Suppressive dose, adults: 0.5 Gm. weekly.

Chlorguanide: Therapeutic in malaria due to P. vivax, adults: 0.1 Gm. three times daily for two to three weeks followed by 0.1 Gm. once or twice weekly for 6 months or longer. Therapeutic in malaria due to Plasmodium falciparum, adults: 0.1 Gm. three times daily for ten days. Suppressive in malaria due to P. vivax, adults: 0.1 Gm. Weekly. Preventive in malaria due to P. falciparum, adults: 0.1 Gm. twice weekly at three to four day intervals.

ALLERGY AND MYOPIA

To the Editor:—1. What are the best areas in California for patients with hay fever and allergy? 2. What are other good places in the United States for sufferers from hay fever and allergy? 3. A 9 year old child has suffered from allergic rhinitis, sneezing, stuffy nose and throat breathing for three or four years. Within the past twenty months the child has become myopic. Is there an association between allergic rhinitis and myopia? Myopia is absent in both father and mother. Administration of diphenhydramine hydrochloride night and morning relieves symptoms of allergy but within the past year the visual acuity has slightly decreased.
M.D., New York.

ANSWER.—California is practically free from ragweed. Therefore, patients who are sensitive to ragweed will almost certainly be free of symptoms in any part of that state. The same holds true for all parts west of the Rockies, and there is little ragweed pollen in the state of Florida.

Those who are sensitive to grass pollen, on the other hand, will probably have symptoms in almost all parts of the United States. Those who are allergic to molds will have fewer symptoms in dry climates such as in Arizona and New Mexico. Those who are allergic to trees are usually specifically sensitive to certain trees and not to all. Avoidance of the special tree is usually sufficient for relief. For example, many suffer from mountain cedar pollen, which is especially found in certain parts of Texas and Arizona. Such sufferers obtain relief by moving away from these districts.

There is no known association between allergy and myopia.

UNDERWEIGHT

To the *Editor*:—What measures do you recommend for persons who are thin, underweight, apparently in good physical condition and who want to gain weight? Recently, I have had several such requests from my patients. After complete physical examination ruling out possible underlying medical cause, I put them on a high caloric diet (4,000 calories daily) rich in fats, a high potency vitamin combination, ten hours of bed rest, cessation of smoking and 20 mg. of thiamine hydrochloride intramuscularly twice weekly. At times, I have used the stuffing diet of Ralli and Brown. In several cases some progress (2 to 3 pounds [0.9 to 1.3 Kg.] weekly gain) was made; in others results were disappointing.
Herman Frank, M.D., Oak Park, Ill.

ANSWER.—Apparently you have already used the more obvious procedures such as (*a*) eliminating possible underlying medical causes, (*b*) feeding high calory diets and (*c*) advising more rest. Possibly in those cases in which these measures proved ineffective, the patients did not really secure through their daily diet the calories aimed at. If they really ingested so many calories, these calories have to be accounted for somehow. Was any record kept of what and how much was really eaten? Personal impressions of how much has been eaten can be deceptive and erroneous. You might check this point by stating your need of the desired record for detailed study in order to find out what is wrong and thus get the record without seeming to tell the patient that he is mistaken about how much he eats. The consumption of diets with too large a percentage of fat should be discouraged.

There are psychologic aspects of the matter worth considering. Are there any energy-rich foods that the patient greatly enjoys eating? The diet could be planned around these foods and others that are familiar to the patient. These foods should be presented in attractive, palatable form. Endeavor to make the eating of meals an enjoyable social function, instead of a time-consuming necessity of life. Teach the patient to forget his business and personal problems while he is consuming his meals. It is, of course, questionable just how much you can do, particularly with older persons, to change their attitude toward life by counsel and measures of this sort.

HYPOGLYCEMIA IN AUTO DRIVERS

To the *Editor*:—What is the best treatment for hypoglycemia (70 mg. of sugar per hundred cubic centimeters of blood). The patient is a truck driver, aged 45 (driving eighteen years). He states that at times the highway becomes blurred and he is afraid of "passing out."
V. M. McCartney, M.D., Monroe, Mich.

ANSWER.—1. Is the patient diabetic or epileptic or has he some other disease such as hyperinsulinism?

2. In the presence of blurred vision or premonitory symptoms of fainting, a diabetic or nondiabetic person has no business to drive an automobile until the cause is found and vision corrected.

3. Meals containing sufficient carbohydrate should be taken by both nondiabetic and diabetic persons at regular hours and no long periods without food should be allowed.

4. No diabetic person who takes insulin should drive an automobile without taking about 10 Gm. of carbohydrate every two hours between meals. Perhaps the safest plan would be to take 5 Gm. hourly on the hour. This may appear to be a small amount of carbohydrate, but the total quantity of carbohydrate burned by a diabetic or a normal person while relatively muscularly inactive is probably not more than 10 to 15 Gm. an hour.

5. No diabetic person should drive a truck unless he or she is under medical supervision every three months with a determination of visual acuity yearly. A good many diabetic persons drive automobiles thousands of miles a year, and one of the justifications for this is that in general their conduct of life is above the average of that of the general automobile licensee and that they realize their responsibility to the public, other diabetic persons, themselves and their own families.

6. Whereas it is wrong for any one to drive an automobile after drinking, it would be a heinous sin for a diabetic person to touch any kind of alcohol and then drive a car.

P_H OF DIAPERS

To the *Editor*:—What is the optimal p_H of diapers, and the range not irritating to babies?
M.D., New York.

ANSWER.—The baby diaper laundries have found that the optimal p_H for the diapers is 5.5. This is slightly under the neutral of 7. The p_H of 5.5 would insure that alkalinity has been counteracted or neutralized. Any variation of the p_H between 5 and 6 is not thought to be the cause of skin irritation, and this slight variation is not significant.

TRANSFUSION IN ASTHMA

To the Editor:—What efficiency has blood transfusion in the treatment of bronchial asthma?

J. W. Hayden, M.D., Chicago.

ANSWER.—Blood transfusions have been used in the treatment of bronchial asthma from time to time. They probably have no specific effect in themselves, but they do contribute to increase of strength and resistance in cases of severe disease. This has been emphasized by Rackemann. It is especially valuable in the type of asthma which Rackemann has characterized as the "depletion" type. Persons with this type of asthma usually are of older age with low morale and poor resistance; they are apt to have associated complications such as chronic bronchitis, bronchiectasis and pneumonitis.

Cooke and his co-workers have shown experimentally that transfusion may relieve hay fever. That is, patients who have had good results from injections of ragweed extract have something in their blood which may favorably influence an untreated patient with hay fever due to ragweed. It should also be pointed out that there is some danger from blood transfusion aside from those dangers which not infrequently occur from this procedure. If blood from an allergic donor is injected into a nonallergic person, the recipient may become allergic to the particular allergen for a brief period of time, usually not more than a month. This was shown by Ramirez, Doerr and Duke. In Ramirez' case, a patient with pernicious anemia received a blood transfusion from a "horse-asthmatic" donor. A few days later, the recipient, while riding behind a horse, had an attack of asthma for the first time in his life. Duke noted a reaction after transfusion with the blood of a patient who had taken milk a short time previously.

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CHRONIC ULCERS

To the Editor:—Is vitamin E taken orally of value in hastening the healing of chronic ulcers? A patient, a woman 82 years of age, has diabetic gangrene in both legs below the knees. She is now sugar free and the gangrene is controlled, but she has a large ulcer on each leg about 6 inches (15.2 cm.) above the instep that I have been unable to heal. Have you any suggestions?

M.D., Missouri.

ANSWER.—Vitamin E (alpha tocopherol) has been advocated by Shute and his co-workers for vascular thrombosis, but their evidence is meager and their results have not been duplicated anywhere else. The diabetic arteriosclerosis of the 82 year old woman will in all probability prevent the healing of the ulcers or the spontaneous elimination of gangrene and, if amputation cannot be considered, relief of pain and aseptic protective dressings are the only reasonable therapeutic measures.

DENTURES

To the Editor:—Is the use of such preparations as "fas teeth" and Wilson's "corega" to keep dentures in place harmful in any way? What is their composition? Would they have any deleterious effect on leukoplakia in the mouth?

M.D., New York.

ANSWER.—The composition of Wilson's "corega denture adhesive powder" is as follows: Each 100 Gm. is said to contain stercula gum 98.186 Gm., magnesium carbonate U.S.P. 0.274 Gm., methyl salicilate peppermint oil, menthol 0.068 Gm., and gum resin 1.472 Gm.

That of "fas teeth denture adhesive powder" is somewhat similar. Each 100 Gm. is said to contain 88.825 Gm. of stercula gum, 11.025 Gm. of sodium borate and 0.15 Gm. of peppermint oil. Nothing contained in these two or similar powders can be said to have a deleterious effect on leukoplakia of the mouth. The gel-like mass resulting when these substances combine with human saliva or other fluids and are retained for hours or days without a thorough cleansing of the dentures may, like the accumulations of food debris, aggravate oral tissues of low tone. This may be caused by a more rapid growth or increase of certain types of bacteria present in the mouth. Little or no research has been done either to prove or to disprove such a hypothesis. Well fitting dentures with properly balanced occlusions of the teeth do not require the use of such preparations. Ill fitting dentures should either be refitted, remade or replaced.

In mouths with cleft palates or other form of serious malformation of the residual bony ridges, the moderate use of an adhesive powder may prove to be the only means of keeping the denture in place. Whenever these preparations are employed the patient should be informed that diligent hygienic care of the denture is absolutely essential.

DERMOGRAPHISM

To the Editor:—Is there any new treatment for dermographism?

Robert S. Srigley, M.D., Hollis, Okla.

ANSWER.—There are several varieties of dermographism, namely, red, white and black; it is assumed that the inquirer refers to red dermographism, which is the common variety.

The antihistaminic drugs are apparently of value in relieving this condition. Feinberg and Friedlaender (*J. Allergy* **16**:296 [Nov.] 1945) found that 50 mg. of diphenhydramine hydrochloride taken five hours, three hours and one hour before cutaneous tests were to be made would do away with whealing predicated on an inherent dermographic tendency of the patient but would not interfere with whealing due to an antigen-antibody mechanism. Baer and Sulzberger (*J. Invest. Dermat.* **7**:201 [Aug.] 1946) found that a subject exhibiting dermographism to a standard stimulus was relieved by the taking of 150 mg. of tripelennamine hydrochloride fifty minutes prior to the stimulus, but that this same amount had no influence on a fully formed dermographic wheal elicited by the same stimulus.

SULFONAMIDE COMPOUNDS

To the Editor:—What is the prevailing opinion regarding use of sodium bicarbonate in conjunction with sulfonamide compounds?

John R. Hewitt, M.D., Hamilton, Ontario, Canada.

ANSWER.—The use of sodium bicarbonate in conjunction with the sulfonamide compounds is recommended so that the solubility of the sulfonamide drugs in the urine may be increased. The fluid intake in all patients who are taking sulfonamide drugs should be sufficient so that urinary output is at least 1,500 to 1,800 cc. during the twenty-four hour period. When the urinary output is adequate and the reaction of the urine is alkaline, the risk of renal complication from the sulfonamide drugs is greatly reduced.

PARALYSIS AGITANS

To the Editor:—What is the best treatment for Parkinson's disease? What can be added to belladonna to overcome dryness of the mouth? Is vitamin K of value? Is neostigmine ("prostigmin") of value?

Harry Halloran, M.D., New York.

ANSWER.—The best form of treatment for Parkinson's disease (paralysis agitans) is use of one of the belladonna-like drugs, of which there are several. Scopolamine hydrobromide seems to be the most satisfactory in the largest number of cases. Drugs satisfactory for overcoming dryness of the mouth are not known. Dosage should be limited to the point where this manifestation of the drug is tolerable. Neither vitamin K nor neostigmine is of any known value in the treatment of this condition.

NO CANCER IMMUNITY FROM CARBON TETRACHLORIDE

To the Editor:—Do workers in a plant handling tetrachloride have immunity from cancer? Is there any known basis for such a statement?

M.D., Illinois.

ANSWER.—There is no basis for the statement that workers in a plant handling carbon tetrachloride have shown an immunity to cancer.

BASAL CELL CARCINOMAS

To the Editor:—In the issue of January 17, page 216, the answer to Dr. D. K. Adler's question on basal cell carcinomas stated that "no evidence is available to the effect that the incidence of cancer (excepting cancer of the skin) is greater in patients who have had basal cell carcinoma than in the general population." I wish to state that in persons who have had cancer of the skin, regardless of the histologic type (a) the frequency of cancer other than skin is much smaller and (b) the life expectancy is higher than in the general population. Statistical evidence is given in my papers (*Am. J. Hyg.* **34: 1-11, 1941, *Am. J. Med. Sc.* **199**: 649-656, 1940). Rejection for standard insurance because of past history of basal cell carcinoma is not justified.**

Sigismund Peller, M.D., New York City.

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